

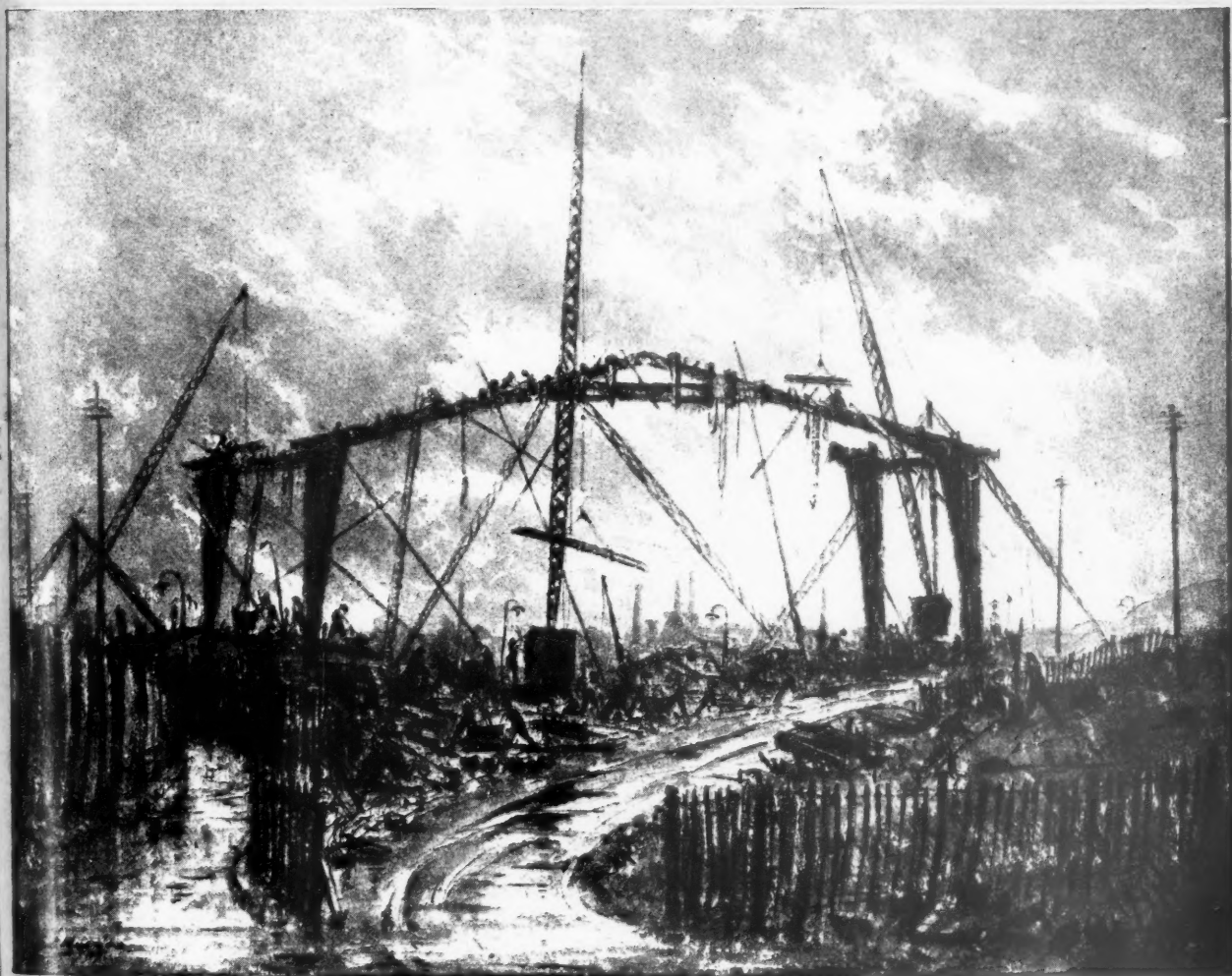
THIRD SERIES VOL 55 NUMBER 5

MARCH 1948

THE JOURNAL OF THE
ROYAL INSTITUTE OF
BRITISH ARCHITECTS

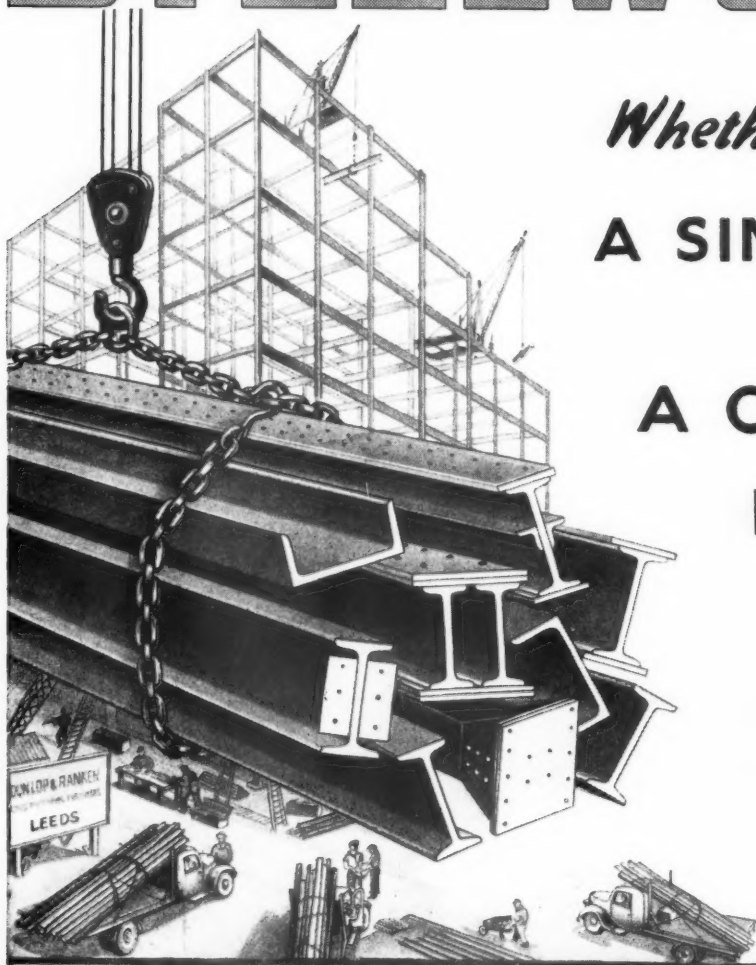


66 PORTLAND PLACE LONDON W1 • TWO SHILLINGS AND SIXPENCE



Site-welding the frames of a wartime factory. From a drawing by E. B. Musman [F]

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THE JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

THIRD SERIES VOL 55 NUMBER 5 : MARCH 1948 : 66 PORTLAND PLACE LONDON W1 : TWO SHILLINGS & SIXPENCE

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Honorary Fellows and Honorary Associates

At the Council meeting of 9 March, the Rt. Hon. Lord Macmillan, G.C.V.O., LL.D. and Field-Marshal Earl Wavell, P.C., G.C.B., G.C.S.I., G.C.I.E., C.M.G., M.C., were elected Honorary Fellows of the Royal Institute.

As Honorary Associates the following were elected: Sir David Lindsay Keir, M.A. (Oxon), Hon. LL.D. (Glasgow and Dublin); Henry Spencer Moore, Hon. D.Litt.; Ronald Norman Collet and Henry Rushbury, R.A., R.W.S., R.E.

R.I.B.A. Reception

The Royal Institute's reception this year will take place on Friday 30 April. The President and Lady Keay will receive members and guests from 8.15 to 9 p.m. There will be dancing from 9 p.m. to midnight. Tickets are 15s. each; early application for tickets should be made to the Secretary, R.I.B.A. Further particulars are published on page 226. There will be no annual dinner this year.

Reception of Mons. Perret

As announced in the last JOURNAL, Mons. Auguste Perret, Royal Gold Medallist 1948, will be present at the R.I.B.A. on 6 April at 6 p.m. to receive the Royal Gold Medal from the President. The meeting is likely to be crowded, and members are advised to be early. The Council of the Architectural Association is holding a dinner on 7 April at 7 p.m. at the A.A. in honour of Mons. Perret. The dinner is open to members of the A.A.

The International Union of Architects' First Congress

The International Union of Architects has recently been formed by the amalgamation of the Comité Permanent International des Architectes and the International Reunion of Architects. The R.I.B.A. has accepted responsibility for the British Section of the I.U.A. The First Congress of the I.U.A. is to take place at Lausanne from 28 June to 1 July 1948 inclusive. The programme is as follows: 28 June. Reception at Congress Headquarters; issue of cards. 29 June 09.00. Conference and discussions. 14.00. Visit to Lausanne and neighbourhood. 18.00. Reception by the Vaudois authorities. 30 June 09.00. Conference and discussions. 14.00. Excursion to Vevey, Bulle, Fribourg. Reception at the University of Fribourg; return to Lausanne. 1 July 09.00. Conclusions and resolutions. Close of Congress. Afternoon free. 20.00. Official banquet and ball.

The Congress will be followed by a series of excursions in Switzerland from 2 to 10 July, covering Geneva, Berne, Zurich and Basle. Accommodation is extremely limited. Architects wishing to attend should apply in writing to the Secretary, R.I.B.A.

Capital Expenditure Cuts and the Profession

The President, Sir Lancelot Keay, and the Secretary, Mr. C. D. Spragg, following earlier correspondence and discussions, recently met the Minister of Works to discuss certain matters affecting the architectural profession in the light of the cuts in capital expenditure. The Minister was accompanied by officials of the Government Departments principally concerned.

Sir Lancelot Keay said that he was not there to question the Government's decision that there must be a cut in capital expenditure. His mission was to suggest that the opportunity should now be taken to prepare plans for future building when circumstances were more favourable, so as to avoid the kind of failures that resulted from lack of preparation in the period between the two wars. He thought that a number of public authorities and private owners were under the mistaken belief that they must, in present circumstances, discontinue their planning work, and he urged that the Government should make a pronouncement to clarify the position. He suggested that rather than increase their present staffs Government Departments and Local Authorities should be asked to give as much work as possible to architects in private practice.

The Minister of Works and the representatives of the other Government Departments expressed sympathy with Sir Lancelot's representations. The Minister said that he was concerned that, when an extension of building activity would become possible, operations should not be prejudiced by lack of planning and preliminary work, and that this was a point upon which he was in communication with the Chancellor to whom he would report the results of the interview. Careful consideration would be given to the question whether the Government could make some pronouncement.

In the course of the discussion a question was asked whether the War Damage Commission could make some payment in respect of the preparation of plans at the stage when plans are approved and not only, as at present, after the execution of the work, especially in view of the fact that the execution of work has often to be postponed. The representative of the War Damage Commission pointed out, however, that under the terms of the War Damage Act the Commission could not make any payment until the cost of works' payment was made.

Royal Fine Art Commission for Scotland

Mr. A. Graham Henderson, A.R.S.A. [F] has been appointed a member of the Royal Fine Art Commission for Scotland.

The British Architects' Conference

The programme of the Conference to be held at Liverpool from 27 to 30 May is now well under way. The proceedings are to begin with an informal reception at St. George's Hall by the Liverpool Architectural Society; an exhibition 'Architecture of Liverpool' will be on view.

The official proceedings of the Conference will begin on Friday 28 May, when the Lord Mayor of Liverpool will welcome members, and the President, Sir Lancelot Keay, will deliver his Inaugural Address. This will be followed by a paper by Sir Patrick Abercrombie [F] on *The Architectural Approach to Re-development*. At 12.10 the Conference photograph will be taken on the steps of St. George's Hall.

In the afternoon there will be a visit to Port Sunlight Housing Estate, and a garden party at Thornton Manor by invitation of Lord and Lady Leverhulme. In the evening there will be a civic reception and dance at the Liverpool Town Hall by invitation of the Lord Mayor and Corporation.

On Saturday 29 May Mr. Gordon Stephenson [F], Lever Professor of Civic Design, University of Liverpool, will deliver a paper on *The Place of Architecture in the building of a New Town*, and Mr. A. Llewellyn Smith [F] will speak on *Community Centres*. This meeting will take place in the small Concert Hall of St. George's Hall. In the afternoon there will be a visit by steamer to some of the docks of Liverpool by invitation of the Mersey Docks and Harbour Board. Alternatives are a visit to a selected portion of Speke Estate and inspection of Speke Hall and the Airport, or a visit to the Town Hall, School of Architecture and Liverpool Cathedral followed by tea at Radiant House by invitation of the Liverpool Gas Company.

For those who want to spend the whole of Saturday on tours there will be a visit to Chester followed by a launch trip on the river Dee. In the evening members of the Conference will meet for the Conference Dinner at St. George's Hall, where the guests will be received by the President, R.I.B.A. and the President of the Liverpool Architectural Society.

The Conference will differ from preceding conferences by being extended over the Sunday. At 11 a.m. there will be a special service in Liverpool Cathedral, where His Grace the Lord Archbishop of York will preach and the banner of the Royal Institute will be set up in the Cathedral with the customary ceremony. This will be preceded by a short recital on the great organ. In the afternoon at 3 p.m. there will be a special concert at the Liverpool Philharmonic Hall which will be conducted by Sir Malcolm Sargent.

Particulars of the Conference and of hotel accommodation available in Liverpool have been published in recent numbers of the JOURNAL. It should be realized that this Conference is not only the Annual Conference of British Architects but marks the centenary of the Liverpool Architectural Society. It will therefore be an occasion at which many members will wish to be present; they are therefore advised to book their hotel accommodation if they have not done so already. A copy of the Conference programme is included as a loose inset with this JOURNAL.

A.B.S. Half-Crowns Christmas Appeal

The President, Sir Lancelot Keay, K.B.E., has sent the following message for publication in the JOURNAL: 'My Christmas Appeal on behalf of the dependents of the Architects' Benevolent Society has produced the sum of £783 15s. 11d. While this amount has been exceeded in earlier years, I think it is creditable in this time of difficulty and uncertainty, and I am most grateful to the 799 architects who sent donations. I would like to thank them, particularly the anonymous donors, on behalf of those in distress who are unable to express their own thanks. I would assure all donors that their generously given contributions are meeting a very real need, especially at this time. The fund is still open.'

Conference on Housing Layout in Theory and Practice

The Conference on *Housing Layout in Theory and Practice* has now been fixed for Wednesday and Thursday 9 and 10 June. As previously announced, there will be a small exhibition similar in scale to that arranged for the Conference on School Design and Construction.

In view of the limited seating accommodation and also because the conference has been primarily designed to interest local authority housing committees, it has been decided to allocate two-thirds of the accommodation to representatives from local authorities and one-third to architects in private practice. It is hoped that, where possible, chairmen of housing committees will attend in person or, where this is not possible, the chief technical officer responsible to the authority for the housing programme. In the first instance only one ticket will be issued to any one authority but it may be possible to issue a second ticket later. Tickets will be issued in order of application and it is regretted that they cannot be made available to students.

Those who wish to attend should write or send for application forms as soon as possible; tickets will only be issued against applications made on these forms. Envelopes should be marked 'Housing Conference' in the top left-hand corner. The final date for application is 15 May, though early application is advised. For the convenience of those attending the conference, buffet tickets price 10s. 6d. will be issued to cover lunch and tea on both days.

The programme is as follows:—

Wednesday 9 June 10.30. Address by the Rt. Hon. Aneurin Bevan, M.P., Minister of Health. A paper by Mr. J. H. Forshaw, M.C., M.A., B.Arch.(Liv'pl), M.T.P.I. [F], Chief Architect and Housing Consultant to the Minister of Health. A paper by Mr. S. L. G. Beaufoy, C.B.E., M.T.P.I. [F], Director of Technical Services, Ministry of Town and Country Planning.

2.30. Mr. R. A. H. Livett, O.B.E., [A], City Architect, Leeds, on *The Practice of the Leeds Corporation*. Mr. G. A. Jellicoe, M.T.P.I., [F], on *Housing in Rural Areas*.

Thursday 10 June 10.30. Address by the Rt. Hon. Lewis Silkin, M.P., Minister of Town and Country Planning. Mr. Frederick Gibberd, A.M.T.P.I. [F], on *Three Dimensional Aspects of Housing Lay-out*.

2.30. Miss Judith G. Ledebøer [A] on *Neighbourhood Planning in New Areas*. Mr. Robert H. Matthew [A], Architect to the London County Council on *Neighbourhood Planning in Built-up Areas*.

R.I.B.A. Librarian

Mr. R. E. Enthoven [F] has tendered his resignation of the post of Librarian and it has been accepted by the Council with sincere regret. The Council invite applications for the full-time appointment of Librarian to the Institute. The primary requirement is knowledge of architecture. Experience of library administration will also be considered an advantage. Applicants must be aged between 30 and 45. Minimum salary £750, rising by annual increments of £25 to £1,000 less superannuation contributions of 5 per cent. Forms of application and further particulars may be obtained from the Secretary, R.I.B.A. Applications must be submitted not later than 10 April.

Review of Films

In our account, published in the February JOURNAL, of the activities of the Films Sub-Committee of the R.I.B.A. Public Relations Committee, it was said that the Committee, among other activities, had been viewing and appraising existing films on architecture and related subjects. Critiques of these films are to be published from time to time in the JOURNAL for the information of Allied Societies, Schools of Architecture and members generally. The first of the series is to be found on page 225 in this number. They will cover both pre-war and recent films.

Exhibition: Architecture of the U.S.S.R.

Magnitude rather than quality was the keynote of the exhibition of Soviet architecture at the R.I.B.A. That a people who less than three decades ago were mostly illiterate serfs, who were defeated in war and torn by revolution should be now constructing public works of a complexity and magnitude comparable to anything in the world—and yet survive a second even bloodier and far more devastating war—is one of the phenomena of history. The historian rather than the architect will seek for the underlying causes, but one suspects them to lie in the inherent wealth of the soil of Russia and in a system of government controlled by a clever and forceful oligarchy determined to 'make good' and in which the mass of the people believe, and where the individual as such does not count.

One would not expect to see those architectural refinements which are developed by a society which has leisure to study detail, and one did not in the exhibition. There is presumably no leisure in Russia; buildings arise under stress of need and to the order of the State, and there is little chance for the experimental designer who hitherto has formed the van of the world's architectural progress; there is no Frank Lloyd Wright of Russia. But one is rather surprised to find that the architecture is markedly out of touch with the forward-looking ideas in design and technique which are animating the rest of mankind. Soon after the revolution, the Russians began to experiment with modern architecture as we knew it in the thirties and there are glimpses of this phase in such buildings as the head office and printing works of Pravda. Quite suddenly, however, and doubtless acting under higher direction, Russian architects abandoned that line of development and returned to classic forms for which they had plenty of models in 18th-century Czarist architecture (notably in Leningrad) and of which the work of Charles Cameron is an example. One looked in vain in the exhibition for examples of shell concrete, slender steel frame construction, or an advanced timber technique. One saw instead rather heavy looking solid wall structures decorated with the well-known trappings of the classical Orders, but without that scholarly refinement which is the hallmark of the skilled classicist.

The few town plans also shown follow the 18th-century Beaux Arts tradition. Axial planning and built-up street façades (together with the resulting internal courtyards) hold the field. There is hardly a trace of the open planning which dominates British town planning thought today. The rebuilding scheme for Tallin might almost be a piece of ancient Rome or Versailles; it is as regimented as that.

The Soviet peoples seem to be still under the spell of building up their State; they are concerned primarily with quantity. A notice in the exhibition listed some of the work to be done in Moscow under the 1946-50 Five-Year Plan. It includes the building of three million square metres of residential floor space, 13 schools and 19 cinemas as well as many other types of building. Of services, 650 km. of gas mains, 150 km. of water mains and 118 km. of district heating mains are to be laid. They think on a big scale and they have hitherto carried through their successive five-year plans, and there is every reason to suppose that they will carry through to schedule this one.

The exhibition showed a surprising wealth of historical architecture, much of it hitherto unknown to us in the West. This is being carefully preserved by the equivalent of our Ancient Monuments Branch. A notable omission from the exhibition was any indication of standards of accommodation in housing; one saw exteriors only.

On the Cover

The sketch by Mr. E. B. Musman [F], reproduced on the cover, has a technical 'story'. In the construction of the wartime factory which it illustrates the steel portal frames were prefabricated in sections which were held in position by cranes while welders climbed on to the frames and welded the sections together.

Ministry of Education Course for Teachers of Architecture

The conference on architectural education arranged by the Ministry of Education for the heads and senior lecturers of Architectural Departments which hold part-time architectural courses in technical and art colleges and schools was held at the R.I.B.A. on 27 and 28 February. Very well attended, it was notable for some remarkably valuable papers and speeches not merely from the platform but from the body of the hall as well. Officially the proceedings were of a semi-confidential nature so that teachers of architecture could discuss their problems with officials of the Ministry and the R.I.B.A., making proposals and criticisms as they thought fit with the freedom which an unreported conference allows. It was in fact a 'get-together'.

However, a representative of the R.I.B.A. JOURNAL succeeded in being present most of the time and, without infringing the not too rigid 'confidential' rule, may briefly report the proceedings. Naturally a discussion on any section of the system whereby architectural education is provided would tend to cover matters which are applicable to the whole subject. This was the case at the conference, and it was to some extent brought about by the fact that several of the official lecturers were heads of or experienced teachers in recognized full-time schools of architecture.

The Chairman was Mr. W. M. Keesey, M.C. [4], H.M. Inspector, and the opening address was by Mr. F. Bray, Under-Secretary of Further Education, Ministry of Education. Speaking on the policy of the R.I.B.A. Board of Architectural Education as regards schools of art and technical institutions with facilities for the instruction of intending architects, Mr. A. B. Knapp-Fisher [F], Chairman of the Board, announced the creation of a new classification of such schools whereby certain selected schools would be termed 'R.I.B.A. Listed Schools for full-time preparation for the R.I.B.A. External Examinations'. The Board would urge Allied Societies to assist Listed Schools by lending working drawings, arranging visits to works, giving criticisms and taking students in offices during vacations, and generally helping and co-operating with the head of the school concerned.

The lecturers and their subjects covered the technique of architectural education very thoroughly. Most of the papers were short but contained much material for discussion. The latter was brisk, critical and often amusing. Indeed, the atmosphere of the whole conference was very cheerful; coats were trailed and both the Ministry and the R.I.B.A. received some good humoured buffets. Generally, however, our reporter received the impression that the heads of these smaller schools are achieving good results against the odds of insufficient staff, inadequate buildings and equipment, too few books and too much administrative work.

The Schools Conference Report

The Report of the Schools Conference held at the Royal Institute in October last has now been reprinted, together with the plans of schools selected from the exhibition. Copies can be obtained, free of charge, from the Ministry of Education, Room 119 (Corr. Section Forms), Curzon Street House, Curzon Street, W.1.

Architects' Indemnity Insurance

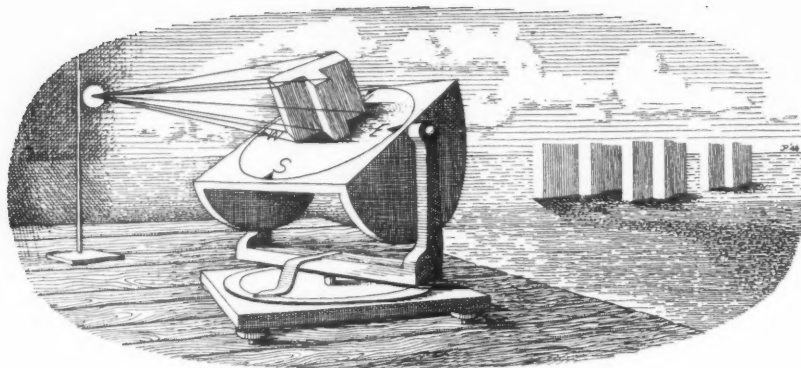
Architects who are contemplating taking out Architects' Indemnity Insurance are advised to communicate with the A.B.S. Insurance Department, 66 Portland Place, London, W.1, who can put them in touch with Lloyds Brokers who specialize in this form of insurance.

R.I.B.A. Diary

TUESDAY 23 MARCH 6 P.M. A.S.B. Lecture. *Air Hygiene*. Dr. T. Bedford, D.Sc., Ph.D.

TUESDAY 6 APRIL 6 P.M. General Meeting. Presentation of the Royal Gold Medal.

FRIDAY 30 APRIL. The Annual Reception. 8.15 p.m.-9 p.m., President receives the guests; 9 p.m.-midnight, dancing.



The Influence of Technical Research on Design and Methods of Building. By M. Hartland Thomas, M.A. [F]

Read before the Royal Institute of British Architects on 24 February 1948

Mr. C. G. Stillman, Vice-President, in the Chair

IT IS commonly assumed that the artistic outlook and the scientific are incompatible. They are very different, but the arts and the sciences are manifestations of the same human spirit, the same five senses are employed, the same brain. They are both of them reactions to sense data. Rational and emotional reactions are mixed, and their components occur in the unconscious and subconscious as well as in the conscious mind. It requires a mental effort, even in modern man, to try to focus attention upon the rational aspects of a topic to the exclusion of the emotional. For man in the primitive state this is not possible at all: its desirability would not even be considered.

The history of the development of science from early times shows a long and arduous separating out of the scientific attitude, and can be traced from the Ionian philosophers of the sixth century B.C., through classical and mediaeval times, to Francis Bacon, and continuing on in modern times to Bertrand Russell, and since. Take, for example, the work of the Roman poet and philosopher Lucretius upon 'The Nature of Things'. He is concerned to advocate a strictly rational explanation of the universe in expounding the atomic theory of Democritus. But he writes a poem to do this, a highly emotional exposition of very flat scientific concepts. He is unable to rid himself of the poetic attitude, for which readers of his work may be very grateful, because it contains poetry of the very highest order. One remembers the introductory lines where he invokes the Life Force and describes the urge of springtime and love-making amongst all living things. He discards his insensate atoms, and writes an impassioned ode to the goddess Venus. Though one is profoundly moved by his poetry, it must be agreed that such passages make bad science.

Early science was constantly marred by the artistic attitude, the tendency to make preconceived patterns in explanation of the universe: for example, the early astronomers' theories of the music of the spheres owed more to artistic fantasy than to a pedestrian analysis of sense data. When the scientific tradition passed from the European world in the Dark Ages to the Arabians, they carried it a long way and scored remarkable successes—witness their invention of an efficient system of numerals and of algebra—but Arab science eventually came to a dead end for the same reason as the Greek, namely, that they allowed artistic concepts, and the desire to make descriptions of the universe, to obscure their clear vision of the data from experimentation. Even in modern times, the Victorian scientists were still constructing mechanical models of the universe, an artistic mode of operation, although their models endeavoured to be entirely flat and unemotional. Science does not reach an absolute minimum of aesthetic content until the present age, with the work of scientific philosophers like Bertrand Russell. He showed the importance of making explanations of sense data from experiments by means of theories that have a similarity in structure to the information from the outside world. As a picture of what he meant, he instanced a gramophone record. The scratches on the recording are not sound themselves, but they are similar in structure to the sound waves that impinged upon the recording apparatus.

The scientific theorist of today does not allow himself to make subjective patterns of the universe, and then to persuade himself that subsequent sense data can be fitted into the pattern that he has made.

It is, indeed, a severe self-denying ordinance merely to devise mathematical formulae as similar in structure as he can make them to the sense data that he has recorded, but it is one of great significance in the gradual separating out of the scientific attitude.

It enables the atomic physicist to carry at one and the same time entirely contradictory theories, to match the experiments that he is making. For instance certain phenomena are viewed simultaneously as the manifestations of particle mechanics and of wave mechanics. Such indefinite suspense of final judgement has enabled enormous scientific successes to be attained, and continues to extend man's control upon natural phenomena. In scientific philosophy this attitude is now being defined as the test of scientific truth by its coherence and its communicability, rather than its proper place in any closed system. A proposition is acceptable if it can be communicated by one scientist to another, so that the second can check it by a similar experiment with similar results. The aesthetic element in science is now reduced to what, so far as we can see, is the absolute minimum. It is not, indeed, eliminated altogether because there is a residuum of aesthetic in the assessment of 'coherence'. One has heard them refer to a 'beautiful' proposition. Science has, at last, after 3,000 years, established its own pure technique, and one that produces remarkable results. Can science now, at last, in safety admit art into partnership again?

This is a question of acute importance in the modern age, because in the process of establishing its own pure technique, science has split the personality of modern man. The split personality need not be endured for ever, provided we can make ourselves consciously aware of the two sides of our

intelligence. Sir Francis Bacon proclaimed a 'New Instrument' when he introduced experimental science to the modern age. He was not the prophet of a new way of life, although rationalists coming after him have been inclined to claim that the scientific attitude is more than an instrument, but is indeed a way of life. But we no longer have to combat this. Modern science has now abated its claim to explain everything, whilst still remaining an instrument. One might argue that since the scientific attitude has been clearly separated, it leaves the artistic attitude the purer for it. This is not altogether an advantage, and the object of this paper is to consider how they can be mixed again, consciously mixed, without damaging each other.

We have seen that one of the tests of scientific propositions is communicability, but art as well as science communicates ideas about the external world. Both are rated according to communicability. Such words as 'expression', 'statement', 'formulae' show that the concepts of both art and science do not come into existence outside the mind of an individual person until they are communicated. There is, however, an essential difference between the two forms of communication. Science communicates notions of quantities, verifiable by number, and intended to be the same for all men. If they do not remain the same, they are discredited. Art, on the other hand, communicates notions of value, fantasy, never the same for any two recipients, no two responses being alike, although the relative importance of works of art does emerge from the sum total of many differing responses.

In spite of this sharp division between number on the one hand and fantasy on the other, the communications of art and science, the notions of art and science, are closely related to each other in any one age. There is a spirit of the times, and men's attention at any one time is focused upon similar things, whether they be artists or scientists. Often, indeed, as with Leonardo da Vinci, the artistic and scientific aspects of the human spirit attain to highest perfection in the same individual. Take two examples. In the Baroque period the scientists, owing to the invention of gunpowder, were interested in ballistics, and the needs of navigation required accurate clocks for fixing the position of ships at sea, which resulted in work upon the behaviour of coiled springs. These two practical needs produced the calculus. At the same time Baroque architecture and sculpture were employing curvilinear shapes, having the same kind of curves as the calculus was invented to define. Again, in modern times, one can see in the early years of this century the space-time idea being exploited simultaneously by artists and scientists, not in derivation one from the other. Einstein's formulae were matched by the work of painters who were showing several interpenetrating views of the same object at the same time. Architects, in new conceptions of spatial enclosure, followed closely upon the lead given by the painters.

Towards Reconciliation

These examples indicate that the seeds of a mutual understanding already exist, that the split personality can be healed in this generation. If this can be done, it would herald the advent of a new Classic Age in both art and science: but there is a danger. The two functions must not be allowed to damage each other. We must make ourselves fully conscious of the proper part to be played by each. We must know when we should pursue the analytical way of science, and when the integrating outlook of art is more appropriate. The scientific method is no substitute for vision in problems that belong to the realm of art, and conversely the aesthetic method could easily, as it has done in the past, frustrate science and blunt the New Instrument. There are both artists and scientists who realize the danger to each, but the idea of a partnership between the two is not yet widely held. Properly used, however, consciously maintaining a balance between them, the two instruments, the artistic and the scientific, can sharpen each other.

The Architectural Attitude

It is a commonplace that architecture partakes of science as well as of art. It may provide a way for reconciliation. A beginning has already been made by combining together architects and scientists in research work, when this is related to human needs. Such partnerships have been found to be particularly effective in the physical sciences in the study of light, heat and sound. This is perhaps because the sense data related to these are at first hand, nearer to man than the data supporting the chemical sciences. When the architectural attitude seeks to combine with the scientific attitude in a team, the architect must make a great effort of study to understand the scientific background of his partners. In doing so he sharpens his own powers of observation, he even sharpens his aesthetic sensitivity, which can be done without losing his broader view. Eventually the effort will have been worth while, because it will be found that the architect will take the lead in initiating subjects for study, and his physicist colleague will lead in the exact formulation of a problem. Others, such as an experimental psychologist, may join the team in searching for the solution. When the architect finds that his wholeness of vision is of value to a scientist in a scientific line of inquiry, he will not be put off by the contact he has made. There should be no risk of his bowing down to scientific method, but he will find that he can use it as an instrument for design, and when he has absorbed it into his preconscious his sensitivity will be heightened and his artistic vision enlarged.

Daylighting

Perhaps because architecture is primarily a visual art these methods are first bearing fruit in problems related to light. Recent work upon the science of daylighting has shown considerable successes, resulting from such partnerships as those described above. Previously daylighting has been

assessed by quantity, the use of the daylight factor. Now we are realizing the importance of the quality of daylight, and considerations of brightness-contrast, and avoidance of glare, are being given scientific explanation. The effect of daylighting studies upon town planning is another important feature of modern work, but it is significant that the artistic idea of the open town plan, with high buildings standing amongst park land, was proposed by Le Corbusier in his 'Ville Radieuse' many years before the Building Research Station began to give the scientific explanations which have justified the artistic concept. But it is not only in the initiation of ideas, later justified by science, that the architectural attitude can help. Perhaps even more significant is that in some topics the architect's method of total sensation can be a safeguard against error, when research is at too early a stage to give detailed guidance.

Colour

The safeguard of total sensation is particularly useful at the present time in the inquiries into the use of colour in factories, and on machines. Experiment and theory are still at a very early stage, but so much interest has been aroused in the subject that guidance is being sought by many industrialists who wish to take advantage of the controlled use of colour inside factories. It is unfortunate that this topic should not have evoked more interest among architects than it has done. Here is something at the present time in which architects could render a special service to the nation.

There is room here also for a great extension of experimental work upon the use of colour. The colour circle theory is, of course, well known to architects, and has been tested upon a physical and physiological basis. It remains to bring in the assistance of experimental psychologists to assess reactions to colour combinations from a large number of subjects. Architects should intervene in inquiries of this kind, in order to safeguard the artistic content. There need be no question of producing glib formulae as a substitute for creative art, unless architects fail to take part. The result of research should be to provide a tuned instrument upon which an artist can play more effectively. We are not unwilling to use the resources of science to provide us with drawing instruments, such as the engine-divided scale, and if we look upon research work as the construction of instruments of this order we need not be frightened by it, but can take full advantage. Perhaps a better analogy would be the musical scale, the existence of which, though a mathematical creation, has surely been no serious bar to the creation of works of art, although in recent times the established musical scale has been under some criticism by musicians.

Proportion

Again in the visual field there are the present researches into geometrical proportion. Again the production of a tuned

instrument is the aim, not surefire nostrums for the creation of absolute beauty. The status in architecture of geometrical proportion is doubly based. First; simple geometry used in the enclosure of space is of the essence of architecture, and geometrical proportion is merely an aspect of such geometry; and, second, these proportions are the result of cumulative experiments by architects through the course of some 3,000 years. They should be looked upon as shorthand notes of design experience, found by architects to be effective vehicles for the communication of fantasy.

Many, of course, work without formulae, defining proportions by eye. It is, however, a common experience for an architect to have chosen a proportion for some important work, and to find later that it exactly fits some known ratio, such as the Golden Section, that has been established by the experience of his architectural ancestors. A comparison with the scientific formula is of interest. This also is a shorthand note of experience, but of experimental experience intended to communicate the observations of one scientist to another. The difference between the two kinds of note is that the architectural one, being of design experience, requires generations to establish, whilst the scientific one can be established by an individual, and is subject to immediate confirmation or rejection by another individual scientist. This research into the re-establishment of architectural proportion is one that can only be done by architects learned in geometry, not by mathematicians interested in architecture, because the geometry involved is elementary and of little interest to the modern mathematician.

Dimensional Co-ordination

Dimensional co-ordination is a somewhat similar topic to geometrical proportion, but the recent history is different, and in a significant manner. For the sake of economy a great effort has been made in recent years to find standard dimensions for many of the prefabricated products of the building industry. The scientific method was first tried, using research and collection of many examples, the averaging of sizes and their statistical analysis. This had some success in standardization within particular industries, but failed completely to co-ordinate one industry with another. As an alternative the architectural method is now being tried instead. It is too early to say whether it will succeed, but the fact that in so pedestrian a job as searching for the greatest economy in mass production, the architectural attitude provides a powerful alternative to the scientific attitude, is important evidence for the case that is being advanced in this paper. The opening for architecture here is provided by the fact that all these things are intended for human use, and therefore solutions based upon the dimensional needs of men can form the starting point of an inquiry into the possibilities of co-ordination. Human dimensional needs are something that architects are well accustomed to take into account. They are part

of the foundations of architecture. If the human aspect can be safeguarded in this question of dimensional co-ordination we need have no fears for its effect upon architecture. We can have hopes of achieving the full economies of mass production, without losing the essential variety that will allow us to create æsthetic fantasy in architectural design.

Heat

Turning out of the visual field with its direct architectural meaning, we come to topics affecting architecture at one remove. Related to the sense of touch or feeling is the problem of heat, including the production of heat for buildings and the loss of it—heating and heat transference. The problem is the creation of a total environment that is favourable to the human body in this respect. The architectural attitude here again points to the essence of the problem, which is a human one relating at least to the whole body, perhaps by extension to the emotional aspects of man as well: for one might instance the common practice in the United States of pointing to the coal fire and chimney-breast as a decorative piece, and referring to the heating apparatus as something quite separate, for example hot pipes buried in the floor. Considered as a whole, this heating problem is not one of heating at all, but one of cooling. The human body requires to lose heat at a definite rate for comfort, not too quickly or one feels cold, nor too slowly or one feels hot. This means that radiant heat, conducted heat and convected heat have all to be taken into consideration at once, so that assessment of comfort conditions by air temperature alone is totally irrelevant.

We have seen figures recently, both here and in the United States, for the gain of solar heat within a building by the use of large windows. It is interesting to note that the large windows appear in architectural work a generation at least before building science justified their use by heat experiments and computations. The focus of attention upon heat problems has also produced many new insulation techniques. These have a cross effect upon the availability of different kinds of construction. There is a trend towards considering heating and insulation together, but not enough has yet been done in this field, and here is again a point where the architectural attitude should intervene.

On the question of heating apparatus the problem now is the architectural one of acceptance and utilization, rather than purely scientific research. The relevant facts are largely known, especially the highly significant one that the average consumption of fuel per household is the same in the United States as it is here, whereas they manage to heat their whole houses with the same amount of fuel as we use to warm two square yards in front of the living-room fire.

Sound

The study of acoustics is another one in which the architect-physicist team has been

found to be effective. At present the field is divided into sound insulation and the acoustics of auditoria. In the field of insulation it is significant that the science itself compels attention to whole structures, rather than the piecemeal analysis of the different parts. Early sound insulation work, which gave insulation figures for individual walls, proved to be a total failure. The architectural view of the thing as a whole was necessary before the secondary paths of sound transmission could be assessed, together with the direct paths.

In the acoustics of auditoria we have lived for 46 years upon part only of the work of Sabine, the negative part, concerned primarily with the damping down of reverberation by absorbents. Now we are turning to positive acoustics, to interest in the initial sound and the design of auditoria as exquisitely tuned instruments for the production of music. The acoustic problems of the talkie cinema and the recording studio have had a surprising importance in this reform. As a sign of the times, to show the increasing acceptance of the idea of the artist-scientist partnership that is being advocated here, is the recent founding of the Acoustics Group of the Physical Society. Here we have a group consisting of physicists, electricians, acoustic engineers, architects and musicians working together. They have now established a special research unit upon the acoustics of auditoria. In this field architecture has to serve the needs of music, the other great abstract art. It is a practical job, making severe demands upon architecture. It is necessary not to affront the sensibility of other persons, whose interest is not primarily visual like ours, but aural.

As the science itself is not related to visual problems, as it is in daylighting, acoustical design presents a clearer case in which to examine the influence of science upon architecture. Architecture has here to translate aural needs into visual form. This is no disability, for the architectural aesthetic can have greater depth of interest if the acoustic element is displayed. Such a display of the scientific element in architectural work is typical of the proper use of the functional content in design. There is no such thing as research into functional needs providing an automatic solution to problems of artistic composition. That is a chimera which has frightened many, but is a mere illusion. There is, however, by the display in visual form of scientific meaning, an opportunity to heal the split personality of the age, and to enhance man's grasp of phenomena by adding an emotional apprehension in the realm of fantasy to the rational and scientific statement of observed phenomena.

Structure

The architectural influence upon structural engineering should provide a similar display of functional meaning. It is clear that at the present time architects are expected to set the pace in structural invention. The present development which

takes structures as a whole to consider their strength is a way of advance that is peculiarly sympathetic to the architectural attitude. Indeed, architects apprehend this often better than engineers. If an architect and an engineer are both confronted for the first time with a shell membrane concrete construction, it is not unknown for the structural engineer to be asking himself how the thrust of the arch is taken care of, and for the architect to have run ahead of him, and to have seen in a flash that the construction is not mainly arched at all, but is really a girder spanning in the other direction.

All the main structural materials seem to be finding their way of advance in the same direction, towards unity of structure. In timber we have the improved jointing methods which give stiff joints to timber framing, and make a demand for stress-graded timber, so as to take advantage of the additional strength in the joints. In steel construction there is welding, still bedevilled by restrictive practices and hostile legislation. In reinforced concrete we have the shell construction already mentioned. Much work is also being done upon prestressed concrete. The combination of prestressed with shell seems to be the line of advance. Speaking of shell construction, it is not unlikely that we shall see the same forms realized in thin metal shells, giving lighter and even more rigid structures than the shell concrete. In metal framing there is the use of space frames, especially the tubular, which are largely derived from the work upon aeroplane fuselages. In all these fields, though the architect is expected to set the pace of advance by his demands, this cannot be done by sheer creative fantasy alone. Sufficient study must be made of the science of structural engineering for the architect to make the right demands upon his colleague. He must be careful not to frustrate the engineer, either by the absurdity of his requirements, or by neglect, as in the architecture that relies upon theatrical façadism, treating the engineering contribution with contempt as mere slavish steelwork for the support of graven images.

In prefabricated construction the architectural influence is strong at the present time. There is hardly one among the many current prefabricating systems that has not an architect in effective co-operation as a member of the production team. This way of building was in the present age an architectural idea, although one must not forget the work of men like Paxton. The architectural experience in planning, and the assessment of human needs and building economics, directed interest towards light and dry construction, and towards making buildings that were capable of being altered without destruction. The future of prefabrication, perhaps of a very large part of all building construction in the coming generation, lies in unit systems—not in the prefabrication of whole buildings, but all out of interchangeable standard parts. This is essentially an architectural concept, for it safeguards planning and permits of replanning to keep pace with human needs.

Materials

Turning from topics where the architectural attitude has already scored successes in research, indeed in which present knowledge is largely in advance of its application in practice, we come to the chemical sciences related to building, which are not so well developed, largely because the architectural attitude has here as yet been insufficiently applied. Physical science, being based directly upon sense data, is near to the architectural attitude involving as it does the human response; but chemical science, being concerned with phenomena at one remove from sense data, is not so readily capable of accommodating the architectural contribution. There is a tendency for work upon the science of materials to grind away purposelessly, in watertight compartments, unrelated to each other or to architectural practice.

The common instance of this which we encounter not only in the published advertisements of materials manufacturers, but even in data received direct from the building scientists, is to give us heat insulation figures obtained from laboratory-dried specimens, without any statement that this is the case. Such figures are, of course, extremely deceptive to the architect, and liable to cause disappointment in use. The work of the Codes of Practice Committees and the Post-War Building Studies, serviced as they are by building scientists and comprising architect members, has made a good beginning in bringing us together. What is wanted now is the establishment of architect-chemist research teams to achieve successes comparable to those already won by the architect-physicist teams. The Panel of Observers, in which architects and others record field observations to assist the laboratory work of the building scientist, is another beginning, although on an amateur level, of what is required.

As in physical researches, the object of the inclusion of architects is to give the work the purposeful creative whole view that at the present time only architecture can provide, and more practically to cover gaps in knowledge by the architect's trained instinctive comprehension. Up to now the work of the building chemists has been most valuable in criticizing bad architecture, pointing out the grosser mistakes in detail such as in the weathering of materials, in rendering, and in the construction of parapets without damp-proof courses. What is wanted now is relying upon their expert knowledge of failures, to lead them into a more positive attitude. Architects themselves are not entirely guiltless in these matters. Recent architecture has been making impossible demands upon building science. The search for the perfect, impeccable surface is an illusion. Little regard has too often been paid to the inevitable movements resulting from chemical and physical change. Here we have instances of architectural fantasy insecurely based upon the relevant departments of science; but it is of no use to refer to the building chemist for advice in detail. He is willing enough to give that, but the

chemist's detailed lists of natural properties do not give the architectural answer. Architects must work with chemists, and show them how to expound the results of their researches in whole groups, before such results are assimilable in the architectural field. An example of this is the assessment of new sheet materials, of which there are so many at the present time. What is wanted now is some criterion of general serviceability, rather than the multiplicity of details which may omit the essential ones for ordinary use. The architect in a research team would at once see the need for such a criterion. For the historic materials this kind of thing is known instinctively from the stored-up experience of the ages to which each new generation of architects is the heir.

Other topics where the architectural attitude is singularly lacking at present are building economics, mechanization, and conditions of working, the last-named not only for the craftsmen and labourers on the site, but through the whole process of management and design. In specialized fields, such as these, solutions are needed that will be of use to society, and can be applied in practice, solutions that are capable of being factors in design. Such solutions are most improbable of attainment unless the architectural attitude is brought right inside the councils of those engaged upon the search for them.

The Search for a New Vernacular

We have been debating now for several generations the need for a new school of architecture, a new vernacular that the greatest and the least among us can employ fearlessly without risk of ghastly error. Many of us deplore the loss of traditional knowledge in all aspects of architecture. Many still think they can recover tradition by copying the external forms of antique buildings. An examination of the state of technical knowledge, and how it is based, shows that the creation of a new vernacular must be undertaken with the full resources of science employed. Inherent knowledge in materials as well as in design has gone, and gone for ever. We have been for a hundred years assailed by a welter of new techniques. These are the by-products of scientific discovery. They cannot be disregarded, and we cannot assess them by traditional instinct.

Such instinct served the architects and builders of the past very well. A material or a method of design gradually established itself by a form of natural selection, by trial and error extended over many generations. The present-day assault of new techniques does not allow time for this, although it is admittedly in the long run the most effective method. But it was also a very wasteful method. In the early days of the industrial age, a new idea for bridge design was established by building bridges ever nearer the limit, getting finer and finer at the crown. One reads stories of the designer camping by the bridge to see it fall down, and note which part gave way first. Similar experiences are recorded in relation to the design in cast iron of the

early 19th century greenhouses. Parallel examples, of course, could be quoted from cathedrals of the Middle Ages, which used to fall down when structural temerity was carried too far.

No one would suggest today that the paper work and mathematics of our structural engineers is not a better way of checking structural designs. The vernacular architecture founded upon tradition is not now available, but the lone individual designer cannot discover it on his own. The burden is too heavy. The method of research is the modern counterpart of testing by tradition or natural selection. Compare, for example, the accelerated weathering test. It is not denied that such accelerated tests have their limitations. It is necessary always to have a control to put into the accelerated test of new materials, such as some well-known material whose performance over years has been noted. Often also accelerated tests have to be done in a different form from the test in use. An example of this is the use of a percussion test for the abrasion resistance of a flooring material. Experience has shown that in particular materials, tiles perhaps, the performance under repeated small percussions is closely parallel to that under wear by foot traffic or trolleys. When that is the case the percussion test is available.

It is indeed often a matter of great difficulty to select the appropriate test. The designing of research itself is, in the present state of architecture, a very important aspect of design. For this reason it is advocated that architects should be forthcoming and make it their ambition to join research teams, and aid in the establishment of the new vernacular, which is of such importance to their art. Here they will learn how to take the variables in a problem one by one, and from their side they will contribute that wholeness of vision which is the architectural attitude. They will also bring with them the architect's acquaintance with tradition in building. This can be most illuminating, not because it will provide answers, but because it can often set the line for useful research. Moreover, the traditional solutions need to be re-established today by the processes of research, in order to protect them from being lost. The unconsciously known is vulnerable knowledge in a scientific age. We have only to instance the sad loss of acoustical experience that must have occurred towards the end of the 18th century, and resulted in so many Victorian places of assembly being impossible to speak in, or to hear music. Sabine's researches at the end of the 19th century showed the reasons why the former were acoustically good, why those more recent were not.

Modern architecture is beset by clichés. Some of them indeed are good clichés, but they are all insecurely established if they are only based upon fashion. Before they can become components in the new vernacular they must find more secure basis in the rational explanations of science. This is not to say that research can do the architect's essential work for him. That would

be absurd. Its place can be clearly defined. Science can help the architect state the requirements for design, and afterwards it can help him check his results. Between these two lies the essential creative act, which architecture alone can perform.

In very large building schemes carried out by highly organized architectural offices this two-fold help of preliminary statement and later check is especially needed, and it should include sociological research to establish the architect's instructions from his community client, who cannot be directly interviewed like a private client. Such research may well result in the preparation of check lists of building needs for architects to use. But the plea here is more than for unprejudiced use of research, it is for architects to enter in and make research itself a creative job. They must stop complaining about science, and lend a hand. The idea is something like the operational research which was so successfully used upon military problems during the war. But it is broader than that, and should more often include in its terms of reference questions such as economics and sociology. This, then, is the exhortation, but in counterpart there is also a threat. Architects will either be the masters of science or its slaves. It is of no use for architects not to like science. Many, indeed, are allergic to any mention of the word, but the nation will insist upon having cheaper buildings.

The present unfortunate cuts in building are basically due, not so much to priorities, as to high cost. One knows of many schemes that never got anywhere near the application for a building licence, because the client found that the cost of building was out of proportion to the cost of substitutes for building, such, for example, as mechanical engineering, which could provide a factory with additional output by greater mechanization. If we choose to be allergic to science and disregard it, science could go on without us. Admittedly, it would be bad science, particularly in the restrictive effect that the series of incomplete publications of interim results would have. It would lack the humanistic element that architecture can provide. The total view would be lacking. Perhaps this deficiency would eventually be realized, and science would fill it from elsewhere, but it would take very much longer, and the renaissance that we all hope for would miss this generation, and architecture would have missed an opportunity.

Architectural Education

The proper position of science in architectural education needs to be defined as the basis for the rapprochement advocated here. At present there is too much science in architectural education, not too little—too much in the sense of too much study of technology and gadgets. The burden upon students needs to be lightened. This can only be done by more generalization, by more study of mathematics, of physics, and above all the study of logic. The architectural student should not be asked to assimilate an ever-growing mass of technological detail. What he should

learn is what science is about, when he should make use of it, and above all how to think methodically. Science for the architectural student, as for the architect, should be an instrument and not an attitude. The architectural attitude, not the scientific attitude, is the proper one for architects.

'Architectural Science'

It is hoped that the notions presented here will indicate that the term 'architectural science' is not merely a play upon words, that there is a meaning in which architectural science is different from science of other connotations. The Architectural Science Board has for some time been advocating the establishment of a professorship of architectural science; for in science applied to building, which includes the shaping of the whole physical environment so far as it is made by man, the architectural attitude can supply an essential something that no other discipline has to offer. Architectural science, properly conceived, can serve the profession and science itself. It can create a scientific expression in harmony with the needs of architecture, and so it might narrow the unfortunate gap at present obtaining between knowledge and practice in architecture. This gap is a truly alarming one. It is a discredit to the profession and a danger to it.

The reason for such a gap is not mere resistance to innovation on the part of architects, but the material offered is so often unsuitable of assimilation by architects and use in architectural design. One is not demanding a simplified science, a 'told to the children' series extended to architects. The character of the science itself must be altered. Such a movement will have an influence beyond architecture in the strictest sense—the enclosure of space in buildings. Because it is the application of a wholeness of vision, architectural research has results in the whole great discipline which comprises in one town-planning, architecture, and industrial design.

(Acknowledgement.—The author is indebted for some of the philosophical notions to the writings of Dr. Martin Johnson and of Prof. Siegfried Giedion.)

VOTE OF THANKS AND DISCUSSION

Sir Harold Emmerson, K.C.B. (Secretary, the Ministry of Works): It is a privilege for me to take part in these proceedings and to have the honour of proposing a vote of thanks to Mr. Hartland Thomas for his very interesting and thoughtful paper.

I do not think that anyone in these days would dispute the importance of the scientist and of scientific research in building, not only in the study of new problems but—and on this I would lay great emphasis—in the examination or re-examination of old practices and accepted notions. I think that the real significance of this paper lies in the appeal which Mr. Hartland Thomas makes—he makes it primarily to the architect, but I should like to see it extended to all the partners in the industry—to have that flexi-

bility and resilience of mind, so that the professional man, the industrialist, the Government department and the scientist all try to see what the others are getting at and join together in trying to identify the problem and to find a solution for it.

For the last two and a half years, the Chief Scientific Adviser and the Scientific Advisory Committee of the Ministry of Works have shown that there are new fields of research, and that many of the old problems can be looked at again from a fresh point of view, and that the scientist can contribute a great deal to the study of these problems. The Scientific Advisory Committee consisted wholly of scientists, many of whom had been engaged during the war in so-called operational research. They had, of course, to give attention to many of the more urgent problems connected with the Government building programme, but they did at the same time indicate the lines on which further research could be done, particularly in the economic and sociological fields. Much of the work which they planned is going on, and will continue for two or three years along the lines of the programme which they laid down.

It was following a review of their work, and of the relations between the various research organizations, that the Government decided to appoint a new Advisory Council on Research and Development in the Building Industry. That Council brings together, probably for the first time, the scientists, the architects, the management (in the sense of the builders), the workers in the industry, and the Government departments concerned. The Council will be an advisory body. It will be concerned to keep a watch over the whole field of research wherever it is carried on, whether in Government departments, Government-sponsored agencies, the universities, industry or the professional organizations. It will be concerned to keep all that research under review, and it will also be concerned with a matter to which I attach the greatest importance, and to which Mr. Hartland Thomas has also referred, namely with getting the results of research recognized, accepted and acted upon.

It is very gratifying to find that the Royal Institute and other professional bodies concerned warmly welcomed the establishment of the Council. The Royal Institute has two representatives on the Council, one of them being the President of the Institute, whom we are sorry not to see here tonight. Moreover, the President of the Institute is the Chairman of the main Committee of the Council, which will be concerned with the programme of research, wherever it is carried on.

I hope that the Council will encourage the industry (using that term in its widest sense) to do more in the way of research. In the case of the building industry, while certain research has been done by certain firms and interests, it has not been organized on any big scale by the industry itself, and it has been left to the Government to provide a means whereby research can be carried on. The Government have for many years provided and financed the Building

Research Station, which has been concerned primarily, perhaps, with what might be called laboratory research, mainly into the qualities of building materials and latterly with certain of the matters referred to in Mr. Hartland Thomas's paper, such as heat, insulation, sound and so on. The total cost of research which is being carried out with the aid of Government funds is over £1,000,000 a year.

I should like to feel that there was a real partnership throughout the industry in this research field. I hope very much that the Royal Institute and other professional bodies within the industry will be willing to join in this partnership and produce ideas and give their help in framing a programme and making the best use of the money which can be made available. I think that the primary function of the Government department is to encourage research, to provide facilities for it, and in particular to see to it that, when research is completed and the results are available, those results are made known and get into the blood, as it were, of those engaged in the industry, whether in a professional or a business way or at any other level.

We want to bring the essence of the results of this scientific research, the essence of the results of the combination of the architect and the scientist, right through to where the actual job is done.

Following the Prime Minister's statement on the functions of the Ministry of Works, we know that we have in that Ministry a Government department which is concerned with encouraging the efficiency of the building and civil engineering industries. It has a definite function to try to help in that way. I should like in particular to emphasize also the second function which the Government department can fulfil, and that is the function of getting the results of the research accepted and acted upon. When I look at my bookcase and see there a row of volumes entitled *Post-War Building Studies* I sometimes wish that it was possible to extract the words of wisdom which they contain and present them, perhaps even in a PICTURE POST form, to the ordinary builder, the teacher in the building trade school, the foreman, the apprentice, and so on.

It gives me great pleasure to propose this vote of thanks and to thank the Institute for inviting me to be present. I know that you will all wish to join me in thanking Mr. Hartland Thomas for his very interesting and stimulating paper.

Mr. Howard Robertson, M.C., S.A.D.G. [F], President of the Architectural Association, who seconded the vote of thanks, said: We have listened this evening to a paper which is unusually thoughtful and very difficult to assimilate at first hearing.

I think that Mr. Hartland Thomas has felt that science should not be swayed by emotion, by sensibility, and that its results should be pure and true. I think he has also felt that aesthetics, architectural design, should not be completely governed by science. He wants to see a marriage between the two, and he instances acoustics, light,

sound, heat, structure and dimensional co-ordination as things which exist in fact and which go to show that at the present time science and design are going hand in hand a good deal of the way.

He then goes on to speak of a vernacular which he feels is looked for today, as I know that it is by many architects and students, to replace the tradition, which was a pleasant rule-of-thumb vernacular grown out of a vast store of experience and knowledge. There I think that he is on more difficult ground, because I can foresee a vernacular arising up to a certain point, but beyond that I cannot quite follow the development, because I do not believe that any number of architects in different parts of the world will ever take the results of science and use them in the same way.

I feel, and I think that Mr. Hartland Thomas also feels, that the architect should really have an integral grasp of design and structure together, and that really means aesthetics and science married, and he should call on the science to translate into reality the ideas which his knowledge of the problem and his emotions and so on make him want to apply; but the results will, I think, be very different with different architects, and, personally, I hope that they will always remain different.

Mr. Hartland Thomas has mentioned the shell concrete roof. With that to hand, the architect knows what he can do there. The subject is an enormous one, and that is why I have sympathy for his suggestion for a Chair of Architectural Science. I do not know what form it would take, but I feel that we want a centre of architectural science to which people can go and make inquiries in a more intimate way and in a bigger way than is possible, for instance, in the case of the admirable help which we get from Watford. Science, I would take it, includes the operations of the builder.

Mr. A. T. Pickles, F.Inst.P.: As the guest of a member of the Institute, and as a physicist, I should like to comment on this paper and give the view of the scientist who is approaching the building industry from the other side of the fence, from the purely scientific aspect.

The scientist, in attempting to produce a structure of knowledge, has to take more than one bite at the problem, because it is so enormous. He has, first of all, to investigate the functions which the buildings have to perform; secondly, the materials out of which they are made; thirdly, the structure of the industry and the relations between the men and the organizations; and fourthly, the economics of the whole process. In order to do this he has to do at least four different sorts of research. The first is functional, in which he asks how far the building meets the purpose for which it has been designed; the second is material, in which he asks what are the properties of the materials used; the third is operational, the question of how the industry works, and the fourth is economic, the question of how much it costs.

So far, the main successes of building science have been in relation to the first

two, functions and materials. In the years between the wars, the main emphasis was on the question of materials, and great strides were made in our knowledge of the new materials. As regards the first aspect, however, I was very gratified to hear Mr. Hartland Thomas's remarks about the importance of combined teams of architects and scientists in this field, in carrying out research on the functional aspects of buildings, with regard to heat, light, sound and so on. I say that because I am a member of such a team, in which I have a number of architect colleagues who are working on these problems.

It is, perhaps, interesting to find out why this is the aspect which architects particularly emphasize as the first and most important on which they will collaborate directly with scientists in research. I believe that it is because the architect is really concerned nowadays with questions of planning, and therefore the architect and the scientist have a common interest in planning and design for the functional requirements of buildings. They have tended to leave the question of materials to the builder and the direct contact of architects with materials research has not been so great.

Mr. L. P. Rees [4]: Mr. Hartland Thomas touched on one factor in which I am particularly interested. I refer to the part which the architect has to play after he has finished designing the building and gets on to the job. I have felt for a long time that the architect has been inclined to think that once he has designed his building and obtained his tenders his job is confined to the supervision of the contractor, more or less as a sort of watchdog. I feel that architects in general can contribute much more than that. The only person who is really in a position to organize the whole of a building operation from its inception is the architect.

I feel that the architect ought to concern himself much more with the organization of a building project from the beginning to the end. In other words, he should first design his building with a view not only to making it very attractive and very usable but to making it a very easy building and a very economic building to construct. Having done that, he should ensure that a contractor is chosen who will co-operate with him on those lines. I would make a plea that whatever research is entered into by the architectural profession, site organization should not be forgotten.

Mr. R. Fitzmaurice, M.I.C.E. [Hon. A]: It has been a very great pleasure for those of us who have been working on the application of science to the problems of building, to hear Mr. Hartland Thomas's very brave exposition. It is frightfully difficult when everything is rather dim, as it is at this stage, really to develop a philosophy, so that he has done a very brave thing. Whether the philosophy which in time shapes itself will in fact follow Mr. Hartland Thomas's model remains to be seen; I would join issue with him on various points, and shall do so later; but let us welcome the

fact that he has put his finger on matters which have been and are critical.

I should like to associate myself very warmly with the point which he makes about the education of the architect, because so many things regarding the use of science start at that point. He says, in effect, that the architectural student has too much science in the shape of gadgets and technology. As a scientist, I would deny that that is science; I say that it is not science at all. Mr. Hartland Thomas, however, puts his finger on the root of the matter when he says, in effect, that the architectural student should have a grounding in basic scientific principles.

Mr. John L. Denman [F]: Sir Harold Emerson has urged that the industry on its part should undertake more research. This, of course, involves a body such as ours very seriously. I would suggest that the solution of the problem lies in some association between the industry and the Government whereby there would be a partnership between the Government and private effort. This would overcome the enormous difficulty of the industry providing the expense involved in the research, and it would enable the results of the research to be put before us in a form which we could assimilate.

Mr. J. A. Lawrence [A]: Mr. Hartland Thomas mentions a split personality, by which I understand he means the scientific side and the aesthetic side. The way in which I look at it is this. We have a large number of people chasing scientific ends down to the most minute point, while on the aesthetic side we have apparently nothing except our subconscious. Architects have been for a very long time, however, studying human beings, their conscious and subconscious and their aesthetic appreciation; it seems to me, therefore, as if it should be something to do with the architect to open up that line of country, whereby the architect should try to organize things from the inside of a building and the human requirements of a building. The common denominator in all that is man himself.

Mr. William Allen [A]: The point which interests me most about this general problem is that we have a certain part of the mechanism already working, so that combined architectural and scientific teams are in being. That part of the mechanism is working all right. Mr. Pickles has mentioned it already, and he leads such a team. That, however, is very definitely a question of laboratory work in which architects are taking part, and I do not yet feel satisfied that in this Institute we have yet found a successful way of getting what I would call definitely architectural research—that is to say, research on functional matters—over to the profession as quickly and as effectively as it ought to be got over. That seems to me to be the central problem.

It seems to me that this is a problem with which the Architectural Science Board should concern itself. A vast amount of scientific research is of no direct usefulness to an architect; it would throw him off his

balance, because it may be only a part solution of a problem, and might land him in more trouble than it was worth. The movement of ideas is to some extent inhibited by differences of outlook.

Mr. S. G. Kadleigh [A]: Most of the speakers this evening have given evidence that there is no difficulty in initiating research; in fact, it has started down the hill, and it will go on whether we want it to or not; and probably we do want it to go on. The point is that as more and more research is carried out, more and more data will be available, and how, as Mr. Allen says, are those data to be imported to the people who want them? I think that Mr. Hartland Thomas went to the heart of this problem in suggesting that the architect should be trained not to get bigger and to assimilate more and more facts but to get smaller and more refined as an individual. He should be taught and should understand science, and he should understand mathematics and, what is more important, he should understand logic and, to a certain extent, psychology. To my mind, if a person really has a fundamental grasp of those things, and is subject to a personal discipline, it does not matter how much research there is and what quantity of scientific data there may be; he will be able to pick out what he wants and understand it and use it.

Mr. Hartland Thomas: I was very gratified to find the amount of agreement which was evident in the discussion with the views which I have been humbly putting before you. One speaker after another emphasized the situation which exists at present, in which we have a very large amount of scientific research of interest to building going on, and a very difficult problem of how to translate it into terms understandable by architects, and then to persuade architects to make use of it.

I should like to suggest to you again that any hope of the proper assimilation of scientific information by architects rests upon architects going into the research teams and, as I have said earlier, making of research itself a creative job. I do not think that it is any use begging architects to use this research material unless they have had a part in working it out and formulating it. Architects must be amongst the diggers for these priceless jewels which are offered to the profession. I would respectfully urge this point of view particularly on Sir Harold Emerson, because I feel that he has a great opportunity in this matter, not only to have, as he has, two of the most distinguished architects upon his Research Council, but also to see to it that architects are brought into the work underneath the Council, so that they take part in the actual research work of the individual units at all grades. I urge upon architects to be willing to do this work, and I urge upon the authorities concerned with planning it to insist upon getting architects to do it. I feel that in that multiplication of the points of contact we may find a solution to the difficulty mentioned by Mr. Allen of getting this information effectively used.

Two Recent American Schools

Architects: Ganster and Hennighausen of Waukegan, Illinois

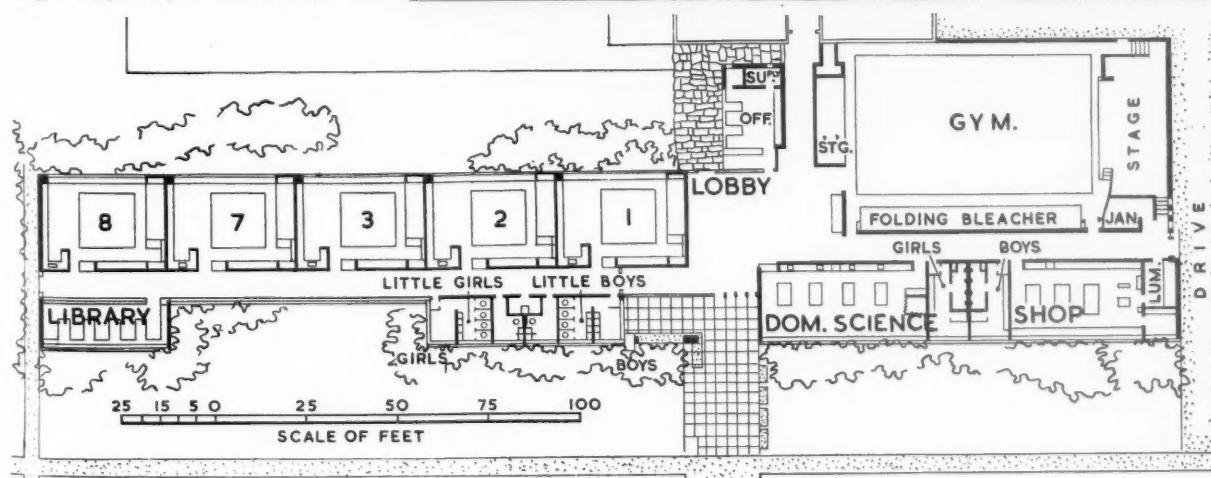
Greenwood School, Waukegan. This is an addition to an existing four-classroom building on a relatively restricted site. Five classrooms, shop, domestic science, library, administration and combined gym and auditorium had to be provided. The entrance lobby is planned to give access to all parts of the new and old building. The academic classrooms are grouped to be locked when the gym is in use for public purposes.

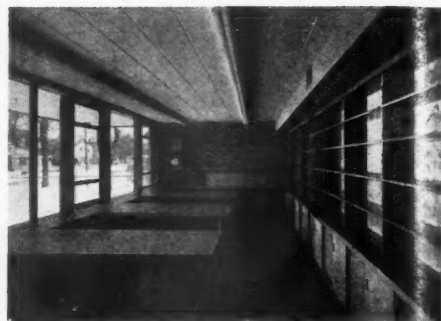
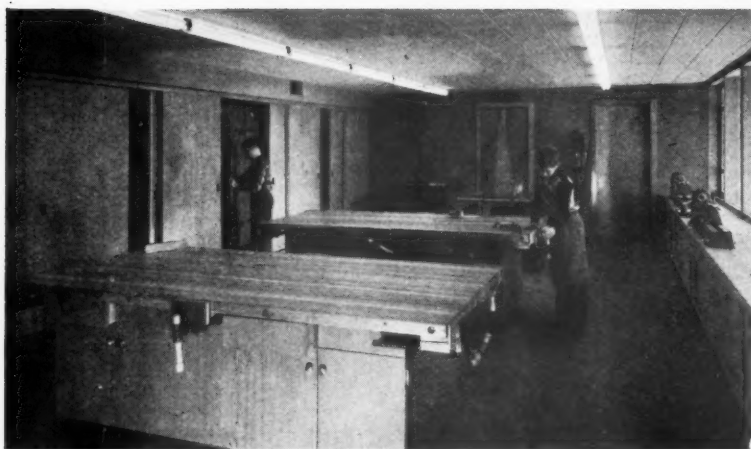
Each classroom is identical except for varying colour treatment. An activity centre is provided in each classroom consisting of a sink and linoleum counter top with cabinets above and below, the whole contained in an alcove to one side and at the end of the classroom. This work centre is incorporated into an arrangement for storage of drawing paper and easels. At the other end of the classroom are the blackboards and platform.

The total cost of the building including all equipment and fees was approximately \$200,000 and the cube 274,340 cu. ft., giving a cost per cu. ft. of 94.5 cents. The total all-in cost was approximately \$270,000.

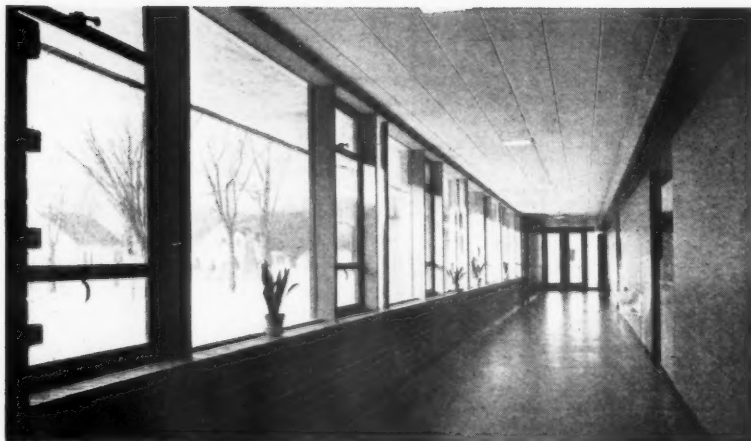
In the design of the building the architects' aim was to relate its scale to children, avoiding the monumentality of most institutional buildings and providing a cheerful well-lighted, imaginative and interesting home for the child during school hours.

Greenwood School, two views of the new building and the plan. The classrooms face due east. The gym is lighted by a west clerestory





Greenwood School. Top left: the manual training workshop. Above: the library has an interesting arrangement of fixed reading tables. The ceilings of all the teaching rooms are acoustic absorbents. The artificial lighting by two continuous lengths of fluorescent strip should be noted

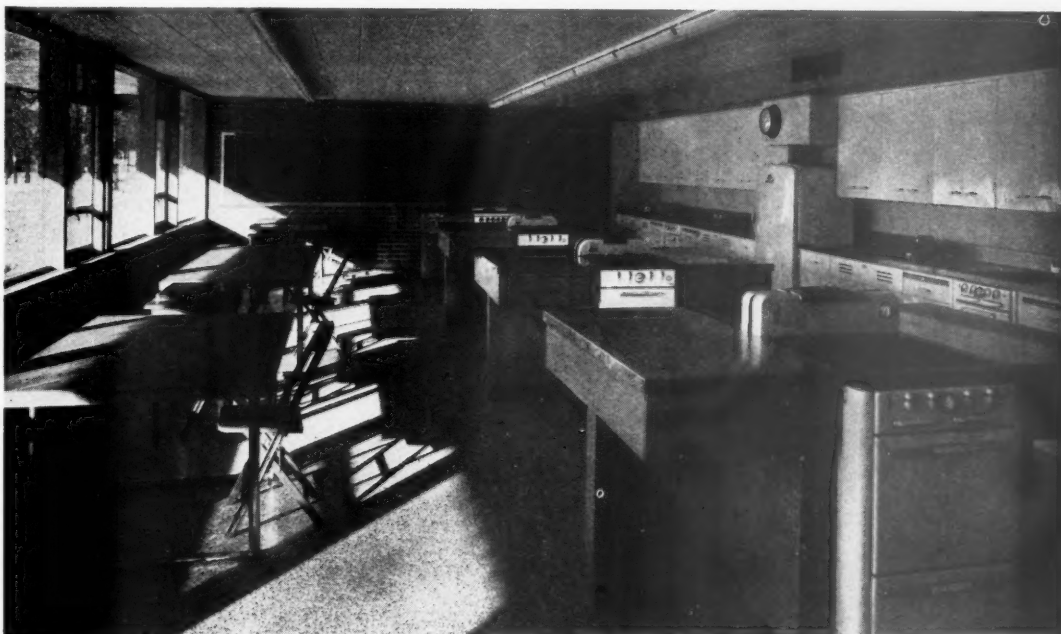


Greenwood School. Above: a typical classroom. Note specially the clerestory lighting on both sides, the ceiling panel lights illuminating the blackboard and 'pin-up' spaces and the good grouping of accessories. Below left: the corridor, and right, the entrance lobby





Greenwood School. Above: the main entrance hall. Right: the combined gymnasium and hall. The basket ball net seen in the centre can be swung up to the ceiling. Note the internal use of facing brickwork

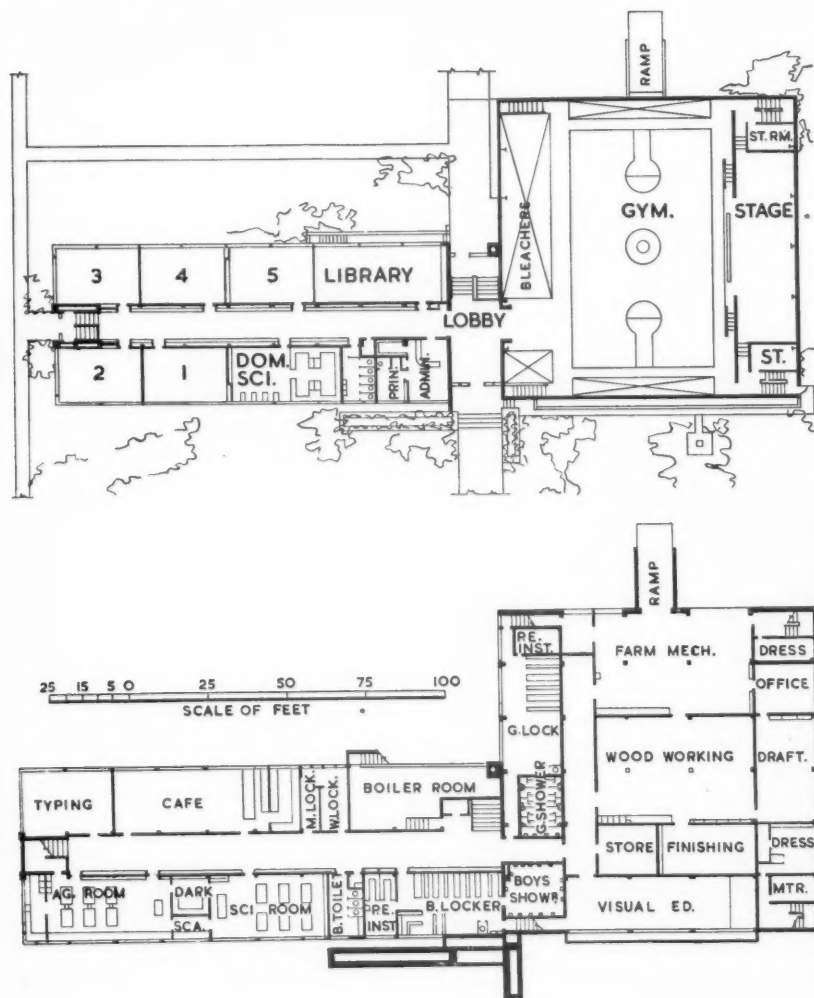


Greenwood School. Above: the domestic science room has a well detailed arrangement of equipment. Below is a detail of the work centre in a classroom with sink, benches and cabinets. Bottom right: the administration seen through a plate glass panel





Grayslake Community High School. The main entrance front and, below, the ground floor and semi-basement plans



Community High School, Grayslake, Illinois. The problem was to build and operate a high school for 450 children in the small farm town of Grayslake, as an alternative to paying the high cost of transport and out-of-district tuition for the town's children. The school is planned for a varied curriculum which emphasizes the agricultural and industrial aspects of education. Set in the north-east corner of a 660-ft. square block, with the classroom wing running north and south, the school can easily be expanded by extending the industrial wing to the west and the classroom wing to the south. Called a 'community high school', it was designed to provide for adult education and recreation as well as child training and thus to become a major factor in the life of the community.

The structure consists of cavity brick walls, a dead level roof with 4-ft. overhang and continuous fenestration. The use of transverse beams with longitudinal rafters permitted the windows to extend to the ceiling, giving the maximum of admission of daylight. Heating is by hot water radiant panels.

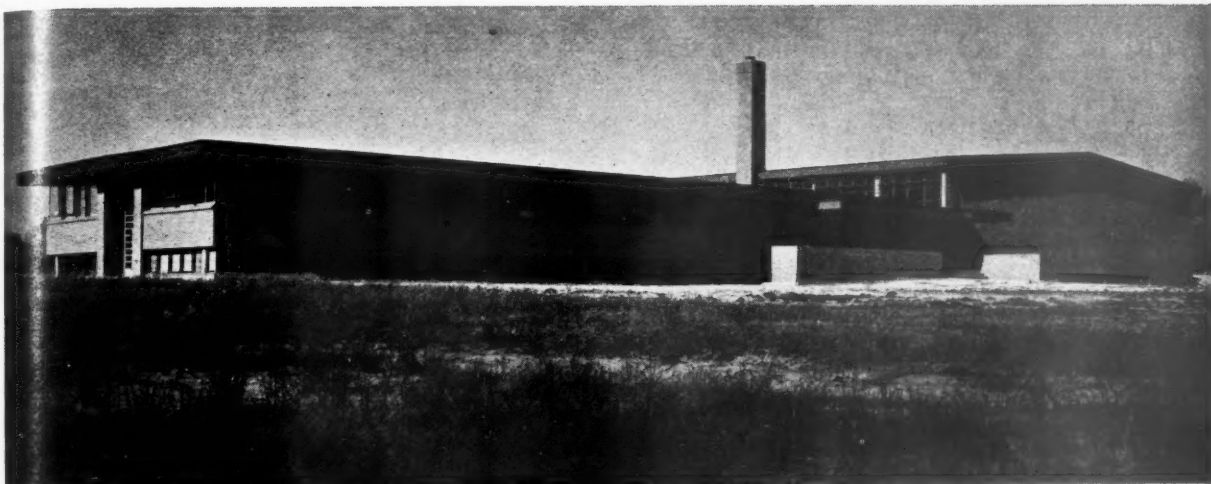
The total cost of the building was \$375,000; the total cube was 570,057 cu. ft., giving a cost per cu. ft. of 65 cents for the building, complete with all equipment and including fees.

These two schools are of interest to British architects because they illustrate how, generally speaking, school architects and education authorities in both counties are working along similar lines. There is the same emphasis on wide-spreading, amply windowed plans, on simple architectural design to human, non-institutional scale and on the use of the building by the adult community.

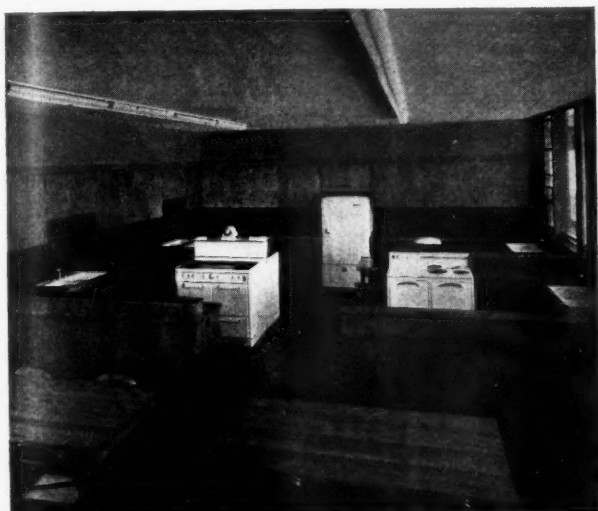


Grayslake School. Two views of the hall which has steel portal frames





Grayslake Community High School. Above: a general view of the back elevation. Middle left: domestic science. Middle right: a typical classroom. Bottom left: the S.E. classroom. Bottom right: the library



Address to Students

By Professor L. B. Budden, M.A. (Lvpl.) [F]

Read before the R.I.B.A.,
10 Feby. 1948. Mr. Michael
Waterhouse, M.C., Vice-
President in the Chair



Reproduction of the Soane Medallion

MAY I first say how much I appreciate the honour of being invited to give the Annual Address to Students on this occasion. I am very conscious that the task which I have been requested to undertake is one that cannot lightly be performed either with profit to the audience or with credit to the speaker. And my sense of the responsibilities which I have accepted has been uncomfortably heightened by re-reading the Address which the President himself gave a year ago, and others^{*} delivered by former Presidents and Vice-Presidents. For everything that is appropriate seems already to have been said and to have been better said than I could hope to say it myself. In the depressing realization of these facts I have, however, consoled myself by the thought that there are some things which do need constantly to be reiterated—and that, in any case, most people have short memories.

It is often asserted, and with truth, that an architect who is worthy of the name remains a student to the end of his life. But you to whom I must now address myself are students in a more specific sense of the term: you are following or are assumed to be following prescribed courses of study, whether under tuition or not, and to be preparing yourselves for the qualifying examinations either of the Recognized Schools of Architecture or of the R.I.B.A. itself.

To those of you whose lives are darkened by the prospect—near or distant—of such trials it may be little comfort to be told that examinations are necessary, that no practicable substitute can be devised for them and that, with all their imperfections, they have proved, as tests of knowledge and capacity, to be, on the whole, tolerably reliable and fair. Though all this may be conceded, the fact remains that, even in the Recognized Schools, where the progress of students, especially in the fundamental subject of design, can be recorded, exhibited and reviewed, where their abilities are known to the internal examiners, where examinations are informed affairs, they are yet a source of some anxiety and a cause of strain to most candidates. A few may face them with equanimity and may await the

results of their own performance like those Balliol scholars who, in the words of the late Lord Oxford and Asquith, enjoy 'the tranquil consciousness of effortless superiority'. But how few they are—and how tragic is their plight when, as occasionally happens, they discover that their reliance upon the perception of their examiners has been misplaced!

If, as I believe, examinations are for most of you—as they were for me and for the majority of my contemporaries—ordeals in greater or less degree, it is well to remember that they have their compensating value. In the studies in which you are specially interested you may not need the spur that examinations provide; but I think that most of you, if you are honest about it, will admit that there are some subjects—they will, of course, vary in individual cases—which may be important in the full equipment of the architect, but which you regard according to your inclinations and temperament either with indifference or with positive aversion; and, if you were not obliged for qualifying purposes to reach a certain standard in examinations in them, it is, to say the least of it, very improbable that you would ever make any very serious effort to master them. On the results of that neglect, as they would affect your general competence as architects, I do not need to expatiate. Even in the fields of study which do engage your interest and in which you may have done extensive reading and acquired ideas and considerable information, examinations can perform an indispensable service: they can force you to consolidate your knowledge and bring it to an issue. To that extent also then they are blessings, however heavily disguised.

I have ventured to labour this point because I believe that a certain amount of cant about the iniquity of examinations and their stultifying effects on the tender plant of enthusiasm is still fashionable. They are represented as paralysing creative imagination, as blighting a disinterested love of learning and as making a toil of what should be a pleasure. That I hold to be nonsense. Edison, I think I am right in saying, once defined genius as 5 per cent inspiration

and 95 per cent perspiration. That saying might appropriately be adapted to describe true architectural ability; and a high proportion of the architect's perspiration is in his early years rightly exacted by preparing for examinations and by the examinations themselves.

But I feel that I have said enough on this subject. Let me leave it to discuss other topics which may be more to your taste.

In the years immediately following the First World War most of the students in the Recognized Schools of Architecture were, as you are now, ex-service men. Whether their courses had been interrupted or whether they were being admitted to a School for the first time, they were generally three or four years older than students of equivalent status would have been under normal peace-time conditions. Those of us whose experience as teachers goes back to the years 1919-1924 well remember how much the Schools benefited from the greater maturity of their students at that time. And so we anticipated that history would in this respect at least repeat itself at the end of the Second World War. Our expectations have certainly not been falsified. As far as the School of which I have the honour to be Head is concerned, I can say that we have never had students of higher quality; and I know that the Heads of other Schools could give you a similar assurance about their own students. This time the average age has risen not by three or four years but by five or six. There has been a corresponding gain in maturity of mind, in critical judgement and in the power to absorb and apply knowledge.

Whilst the War was in progress many of you will no doubt recollect how, when you were on leave, you used to visit the School to which you hoped to return to complete your qualifying course; how you were usually full of doubts and apprehensions; how you felt that you had lost all your skill and forgotten everything that you ever knew about architecture. Well, I think that most of you will agree that that nightmare was dissipated pretty quickly once you were free to resume your studies and that it was a matter not of months but of weeks only before you found that, if your memory

was not at first quite as good as it had been, your understanding was, from the outset, better, and that you were more 'on top of the job' than you had ever been before your course was interrupted.

To this rule there have been, not unnaturally, some exceptions, some cases in which readjustment has been difficult, some even in which it has proved to be impossible. But in the main I believe it to be true to say that the great majority of you in the Recognized Schools today feel, despite the uncertainties of the future, better able to cope with your work as adults than you ever did as adolescents.

When in due course architectural practice is resumed in this country on a sufficiently extensive and varied scale and you come to participate in it as assistants, I think you will find that it will exhibit—though possibly in modified forms—much the same phenomena as it did between the First and Second World Wars; and that for some time at least there will continue to be different schools of practitioners who will pursue different aesthetic ends in different ways. We shall, I feel sure, still have with us those architects—a diminishing number—who in their approach to their work and in matters of style generally are sincere conservatives; who are by training and temperament in sympathy with old familiar ways of doing things; who have mastered the vocabulary and grammar of one of the historical styles and can design in it with sensitive taste and even with power; and who will not in any circumstances be persuaded to attempt adventures in a contemporary manner which they neither understand nor like. There will, I am sure, be others who will be more accommodating; who, whilst they will much prefer to continue to adapt the resources of historical architecture to the exigencies of contemporary programmes, because they feel more confident and altogether happier when so doing, will nevertheless be prepared, if circumstance seems to make such a course advisable, to 'go modern' on occasions. And lastly, there will certainly be those architects who may comprehensively be classified as contemporary in outlook and practice; who are ready to experiment with new materials and with new ways of using old materials; who accept the machine and what the machine implies: standardized units, prefabrication and mass production; who look forward to further advances in architecture as a result of the intelligent application of science to planning, construction and equipment; and who enjoy exercising their creative gifts, unfettered by the restrictions of the historical styles.

Now there can be no doubt where the sympathies of the vast majority of you lie in this matter. However interested you may be—and you undoubtedly should be interested—in the study of the history of architecture, ninety-nine out of every hundred of you want so to design that your work will be instantly recognized as the product of our own time and of no other. This is not only natural and understandable; it is, I am convinced, inevitable. In saying that,

I do not mean to suggest that it is something to be endured with resignation. Rather do I think that it ought to be welcomed, because I believe that the assumptions on which your attitude is based are largely right and, indeed, cannot be controverted. For good or ill the kind of building in which hand craftsmanship played so important a part is passing; a complex of factors, economic, scientific, social and political, is bringing that about; and, if architecture is to survive, it can only do so as an art of design which accepts frankly and uses for its own ends the resources of machine production. You are convinced of the truth of these propositions and, so far from daunting or discouraging you, they have generally a tonic and stimulating effect upon your imaginations.

That you should respond as you do to the conditions which are going more and more to determine the form and character of our architecture seems to me to be admirable, and to be full of hope and promise for the future. Nevertheless, I would warn you against tendencies which are apt to be associated with the most praiseworthy enthusiasms in architecture and which are not wholly absent today. Because you are satisfied that you are right in what you are doing or are wanting to do in design, because you feel sure that the future is with you, you are not on that account justified in taking up a patronizing attitude to serious work that may be out of the main stream of contemporary development. Such work may have qualities which do not deserve to be ignored, still less despised, and there is no sense in resolutely closing your eyes to those qualities, if they are there to be seen and enjoyed. Doctrinaire intolerance is as much to be deprecated in a cadet of the *avant-garde* as it is in any senior member of the profession—and it is less excusable. As people grow older they may be pardoned if their receptive faculties tend to atrophy, if, when faced with what is new, they do not all grasp its intention and significance; but there can be no excuse for you who are young when you turn your backs on accomplished work that does not happen to be progressive in the sense in which you understand the term. That work may, for all its conservative limitations, be much easier and more agreeable to live in and with, and may achieve a more civilized poise than many experimental essays in building whose shortcomings you are quite ready to overlook. For that reason alone you should be prepared to study it, to learn from it what you can and not to dismiss it as the sterile product of reactionaries and escapists.

As designers there may be only one way for you to do things, but, as intelligent appreciators of other people's work, it is essential that you should be reasonably open-minded. Otherwise you are bound to be not merely unjust but to impoverish your aesthetic experience and to become sectarian in the most unfavourable sense of the term. The tendency to this particular kind of provincialism is, of course, to be found in many places; but, if I may

say so without offence, it does appear to be more marked in London than outside it—a phenomenon which perhaps becomes explicable if one accept the description of London by one of our Polish friends as, 'Twenty provincial towns in search of a capital.'

Another tendency against which I would urge you constantly to be on your guard is that of following a fashion for no better reason than that it is the fashion. The temptation to be modish in architecture seems to be ever-present and you are not necessarily immune from it when you have qualified. A case in point is the present cult of asymmetry. In defence of this cult it is plausibly argued that symmetrical compositions express a regimented conception of human life; that they are appropriate to societies that are autocratically ruled, and that they therefore really belong to 'the architecture of command'; whereas informal compositions with flowing shapes and irregular silhouettes are essentially in harmony with the way of living and with the political ideas of a free society. There may be something in this view, but not, I am persuaded, as much as its more facile exponents would have us believe. I find it, for example, very difficult to see in the modest symmetrical façades of small Georgian houses brutal assertions of dictatorial power. No, the prevalence of asymmetry in architectural design today is, I believe, primarily a reaction from the excessive preoccupation with symmetry that characterized the teaching and practice of the Schools in the earlier years of the present century: it has become largely an affair of fashion and of habit, without much clear thinking at the back of it.

When I was a student it was the custom in the Schools to strive for a symmetrical solution to every problem of design. However disparate in volume and importance the elements of the programme might be, however insistently everything—the contours of the site, the means of approach and the character of the environment—might point to an asymmetrical scheme as the only sensible and appropriate answer to the problem, we would have none of it. Even if it meant breaking the plan on a rack to force it behind some preconceived symmetrical façade we would do it. To all considerations of economy in terracing and excavating we were magnificently indifferent. If the result was symmetrical to the last dentil we felt that we had our reward. For some years, now, the situation has been reversed, and most self-respecting students would today rather cut their throats than perpetrate anything so *démodé* as a symmetrical composition. Literally, that may be something of an overstatement, but essentially I hold it to be true. I well remember participating some time ago with other examiners in a review of studio work submitted by students in their Third Year in one of the Recognized Schools. Amongst the candidates was a charming and intelligent girl who presented a scheme whose perverse asymmetry was the outstanding and most perplexing thing about it. The whole programme, which had been

specially set for her, called for a symmetrical *parti* so obviously that we were genuinely at a loss to understand how such a straightforward problem could have been so misinterpreted. In the end, after protracted questioning, we got this answer: 'Of course I *could* have made my design symmetrical, and as a matter of fact I rather wanted to. But, if I had, everyone in the Year would have laughed at me!'

But enough of the embarrassments that can come from trying to achieve 'the New Look' in architecture.

A criticism which may, I think, fairly be made of some of the best-intentioned and most serious work of many students today is that it tends to be inhibited and negative in character. So much is conscientiously rejected that, in effect, to use a familiar metaphor, 'the baby is emptied out with the bath water.' The result is too often to be seen in designs whose chief characteristic is that they have no character: they may be for branch libraries, for post-offices, for banks, for clinics, for transformer stations or for public halls, but without the clues afforded by their titles it would, from their elevations, frequently be impossible to identify with any certainty the subjects which they are supposed to embody. You will, I believe, often yourselves, be aware that this is so—and to be aware of it is to be some way toward remedying the defect.

Admittedly it is difficult today to make the individual character of every subject immediately explicit, partly because changes are taking place in the nature and content of some architectural programmes and partly also because there are no established precedents for the significant expression of others. But character in a broad sense it should still be possible to achieve—whether domestic, commercial, industrial, recreational, civil, religious or whatever it may be—and works which cannot be readily perceived to belong to some such recognizable category are to that extent insufficiently expressive and the poorer for being so. And more than that, it should be possible to give to every building by the way in which it is handled, and by its scale, its due place in the order of civilized architecture—that order which ensures pre-eminence in dignity and importance for the buildings that serve the spiritual, cultural, political and administrative needs of society and accords a lesser status to those that serve more material or more limited ends.

It has been said that the day of monumental architecture is over. If that were true it would be so much the worse for architecture. But it is obviously not true. For, however light the structure of our temporary and experimental buildings may become, and however thin their hygienic skins, the human demand for something more durable does not anywhere show signs of being less insistent. Authoritarian states are in this respect clearly at one with other societies in desiring that their more important architectural works shall possess the monumental attributes of dignity, breadth, a certain nobility of conception, and at least the appearance of permanence.

Examples of contemporary architecture that is distinguished by these qualities can be found in many countries, but to achieve such architecture needs a degree of confidence which some students—and especially British students—do not so readily acquire. But it can be acquired, as the students of the Polish School of Architecture, with whom we in Liverpool had the privilege of working during the last war, so convincingly demonstrated. Admittedly, they had the advantage of being the inheritors of a Baroque tradition, the spirit of which informed even their most advanced interpretations of contemporary programmes. Yet you, too, should not find the achievement of authentic monumental architecture beyond your range, once you have grasped its essential attributes and have realized that they can never be out-moded.

There are a number of other tendencies besides those that I have already discussed which I might exhort you especially to resist today. I will mention only three—and these briefly. First, I would refer to the tendency to become preoccupied with some particular aspect of an architectural programme and to neglect others of equal or greater importance. The determination, for example, to secure ideal orientation or perfect acoustic conditions in every element of a scheme, or absolute consistency in geometric ratios in details as well as in general composition, each of these concerns can develop into an obsession and be carried to a point when it prejudices the proper handling of the entire project. The requirements of a complex programme—and most programmes today are complex affairs—demand comprehensive and balanced consideration: their claims must be assessed in relation to each other and to the undertaking as a whole. All this will involve adjustments and compromise. If the right adjustments have been made: if first things have been placed first, the ultimate result should be a work of architecture. But, if you permit yourselves to concentrate unduly upon some special or subordinate aspect of your subject, you will achieve at best no more than a partial solution of your problem. At the present time the danger of what I would call technological fixations in architecture is very real, and I would earnestly advise you, whenever you detect signs of their incipient growth in yourselves to deal with them firmly.

The second tendency I have in mind is one which I believe to be declining. It is, however, not yet dead, and my reason for speaking about it now is that I want to hasten its end. It is the tendency to think that the architect ought to be omniscient, that he ought to qualify himself to undertake all sorts of expert tasks that really lie outside his province as an architect. We still, for instance, hear it urged that, since architecture has to serve the needs of society, architectural students as part of their professional education might, with advantage, engage in sociological research—that they might profitably and enjoyably spend, say, a year in discovering how the poor live, in finding out how many houses

in a given slum area have inside sanitation, in ascertaining the opinions of housewives on a variety of interesting topics and in presenting the results of their enquiries in statistical form. You might indeed do this; you might assemble much useful information; and might even enjoy yourselves in the process. So also might intelligent students of physics or chemistry. But neither would greatly advance their knowledge of their own subjects thereby. Nor would you, as a result of such a diversion of your interests and attention, make much progress in the studies that are your proper concern—in planning, construction, services, equipment and design for example. In any case, the sort of research proposed would in point of fact be much better undertaken by trained social investigators whose business it is to be experts in this field.

Let us be clear about the kind of professional competence you as architectural students should set yourselves to acquire. When you qualify, it will be as architects, not as sociologists, psychologists, or any other species of experts. It will be your business to make intelligent use of the data provided by those experts, and by other people with special knowledge in their respective provinces, and in making intelligent use of that data, to give civilized form to the needs of society. If you learn how to do that, it will be sufficient.

I come now to the last tendency against which I would utter my final warning—the tendency for you as architectural students to live almost exclusively in a world of your own kind. Even those of you who are studying in Schools of Architecture which have the good fortune to be established in Universities are too often apt to herd together and to form, in effect, a closed society. Yet, if you are to see your own subject in true perspective and in due relationship to other studies, if you are properly to grasp the position and functions of your own profession in our complex civilization, if you are generally to broaden your experience and enrich your mind, you should take full advantage of the opportunities that exist for contact with students pursuing other subjects. For those of you who are spending two or three years in residence in a college, hall or hostel of a University, it is relatively easy to make friends amongst fellow undergraduates taking courses in the humanities, medicine, law, the physical and social services, economics or engineering; and I know that some of you do, to your great advantage, make such friendships and find them stimulating and valuable. For others who are not actually living with students of different faculties and departments it may be less easy to find the time or opportunity to follow your example. Whilst for those of you who are attending institutions unconnected with Universities the difficulties in the way of cultivating, through varied contacts, a wider range of interests and sympathies may appear so great as to make you feel that it is not worth while attempting to do anything about it. Until such time as all schools of architecture in this country are incorporated in Universities, and until the Universities

themselves have completed their programmes of residential development, the difficulties are bound to be formidable for many of you. Yet even so I would urge you, whilst you are still students, not to be content with too small a world—the world of your own School and the society of people who are pursuing the same studies as yourselves, but to seek to enlarge your experience and understanding by meeting and exchanging ideas with students of other subjects—even if you have to go to some trouble to find them. What you may lose in self-satisfaction will be more than offset by what you will gain in liberal education.

And with that thought I would leave you—adding only to it my best wishes for your success in a future which may be temporarily uncertain but which, we must all hope, will soon give you the opportunities that your abilities and keenness deserve.

VOTE OF THANKS

Dr. D. R. Pye, C.B., M.A., Sc.D., F.R.S., Provost of University College, London: It is my privilege this evening to propose, on behalf of all present, a vote of thanks for the amusing, wise and thought-provoking discourse to which we have just listened. In some circumstances it might also be appropriate to extol the achievements and distinction of Professor Budden to whom we have listened. I feel, myself, that for me to do such a thing as speaking of a man who has been the head of one of our greatest schools of architecture in this country, and to do it within the walls of the Royal Institute, would really be gratuitous. Instead I might perhaps be allowed to give expression to one or two random thoughts.

It happens that I am closely associated with one of the trio of great professional institutions in the field of engineering—I refer to the Institutions of Mechanical, Civil and Electrical Engineers—and I am very well aware from that connection of the great interest which those institutions take in University studies in the field of engineering. I have been much struck by the far closer association, as I see it, between the Royal Institute of British Architects and university studies than obtains between the other professional institutions to which I have referred; and as one who has comparatively recently become ultimately responsible for one of the university schools of architecture, I should like to express my feeling—which I am sure is shared by my colleagues at University College—that this very close association between the Royal Institute and university departments is an extremely valuable one, and one which I hope will grow ever closer and closer.

My second random thought is this: we have heard, and shall go on hearing, a great deal about the deplorable degree of specialization in university studies. I think that in bewailing specialization there is a certain amount of misunderstanding which is often really due to a failure to get down to the facts. But there is one thing of which I am perfectly convinced. The suggestion that the effects of specialization will be cured by providing students of technological subjects with what I may call 'side

by side' subjects, in order to broaden their minds, is no solution. To my mind the real education—apart from specialist studies—must come through a vital interest either because of the—shall I say—humanizing elements integrated with the whole subject of university courses, or because of a vital interest which each individual may grow for himself. But—and this is the thought that has been growing in my mind—the education of the architect is almost a perfect education from many points of view, and in particular from the point of view of the danger of specialization. There is the skill of hand of the draughtsman with which he begins his trade, the training of the eye, the sense of history which he cannot avoid arriving at through the medium of his own trade, building, and a certain knowledge of classical civilization and even classical language, setting aside the sculpture of the ages, the decorative aspect of the building, and finally the technology of his art. It seems to me that since every architectural student must regard every one of these sections of his exercise as part of the whole, you have there the conditions for the ideal education. It is, I think, the responsibility of every teacher of architecture—and this building is the centre of inspiration of the teachers of architecture—that architects shall acquire their skill, their technology, against the background of culture, stimulated by imagination of design. It is the constant contact between the practising architects and the teachers which, I think, is going to maintain the architect as an educated man. I have very great pleasure in proposing a vote of thanks to Professor Budden.

Mr. Martin S. Briggs [F], Vice-Chairman of the Board of Architectural Education: It is a real pleasure to me—I mean that genuinely—to second this vote of thanks, partly, I suppose, because it has been so easy to agree with every single word that Professor Budden has said, and partly because for a very long time I have been a great admirer of his important work at Liverpool. He treats his professorial chair there with the dignity it deserves, not as a stepping stone or a springboard, or an orator's soap box, or a side-show. He treats it as the serious business of life and devotes to it all his very considerable abilities.

When I was a very, very young man it was a great ambition of mine to take the course at Liverpool. Unfortunately that was never realized. Even in those remote days it was well-organized, but the period to which Professor Budden has referred, the Beaux Arts period, as you might call it, came a little later, and then held the field until about 20 years ago, especially at Liverpool. When I first began visiting the Recognized Schools with the R.I.B.A. Visiting Board, the Beaux Arts tradition was—I had better say dominant. I was going to say rampant. At any rate, I found it rather strong meat at that time, but its chief exponent was a very important member of the Visiting Board, so I had to swallow all those ideas of exaggerated symmetry and elaborately rendered classical compositions that Pro-

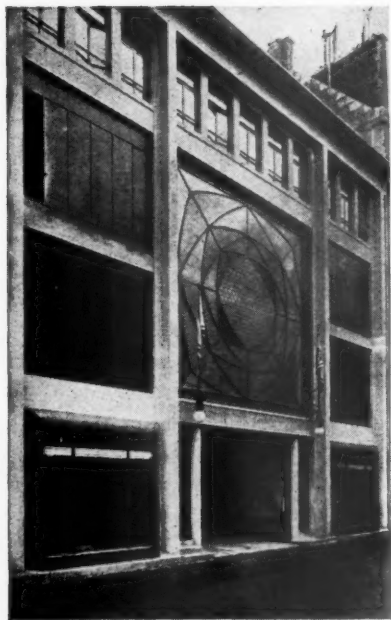
fessor Budden has described. Now the pendulum has swung so far back in the other direction that sometimes I feel almost out of the current fashion. I say deliberately 'current fashion' and not 'current opinion' because I rather fancy that style and design are very often dictated merely by a sort of blind wish to follow the band rather than by any logical process of thought. Perhaps that is a little unkind, but I think it is so.

At the risk of declaring myself completely outmoded, I want to add something to what Professor Budden has said on the question of architectural history. You will agree that that is very rash. I venture to conclude with a little plea in its favour and to add two arguments to those he has already mentioned. The first one I give with some confidence. I make no apology for it. It is strictly utilitarian, even cynical. When you students go out into the world you will find that the average member of the public is far behind you in his outlook on architecture. He is not at all advanced, and he continues to cherish all those old-fashioned ideas about the cathedrals and the beauties of architecture. Now my point is this: you cannot afford to let the students' band get ahead of the procession. You simply cannot afford to ignore the procession, because from that comes your bread and butter. And, incidentally, the procession would be rather apt to regard you as quite uncivilized if you did not know all the latest information about the cathedrals and their beauties.

My second argument I feel rather diffident about, but I am making it from the heart. I am going to suggest that people who ignore the study of architectural history are missing something very precious. There is no need to be ashamed of living in England, and we ought to be rather proud of these fine things around us, and these buildings. I think you get cheer and refreshment and, if you like, a kick out of it that you cannot get merely out of the utilitarian bread and butter things. I am old enough, now, not to mind being called old, and I can tell you honestly that I have enjoyed this sort of thing all my life, and now I have retired from the hurly-burly I get no end of fun from sketching and studying and generally visiting old buildings in a way I have not had time to do for many years. I am not preaching: I am merely offering it as a suggestion. I have very great pleasure in seconding this vote of thanks to Professor Budden for his admirable address.

Professor Budden: I know that the real business which has brought you here this evening is the Presentation of Medals and Prizes. I will not stand any longer between you and that pleasant ceremony. I would only thank Dr. Pye and Mr. Martin Briggs most sincerely for the very generous things which they have been kind enough to say, and you too for the indulgent patience with which you have listened to an Address that may, I fear, have been rather longer than usual.

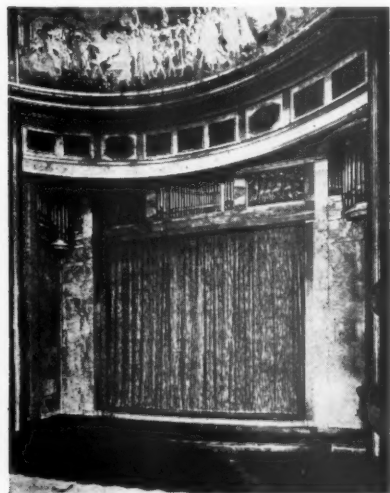
The Chairman then presented the Medals and Prizes, awarded by the Council, to successful competitors.



Auguste Perret

Royal Gold Medallist, 1948

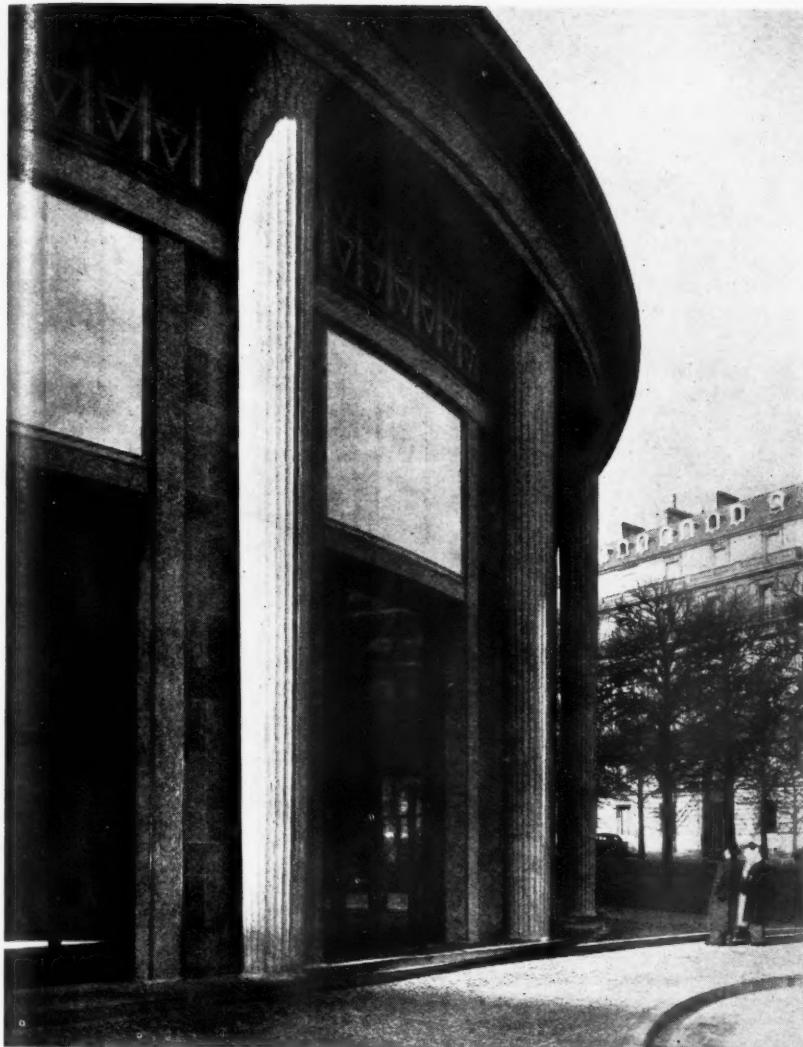
These few selected photographs illustrate the most notable buildings of Auguste Perret and show by their dates the extent to which his ideas have always been in advance of current architectural thought. The Ponthieu garage is the prototype of all the r.c. frame and glass façades which have followed. The Champs Elysées theatre shattered the rigid classic convention which then ruled theatre design. The recent Museum of Public Works, near the Trocadero in Paris, reflects the urbanity of its surroundings but is a bold use of reinforced concrete as a monumental material.



Above, left: 1906, the garage at Ponthieu; an early essay in reinforced concrete design. Above, right: 1936, the Museum of Public Works, Paris

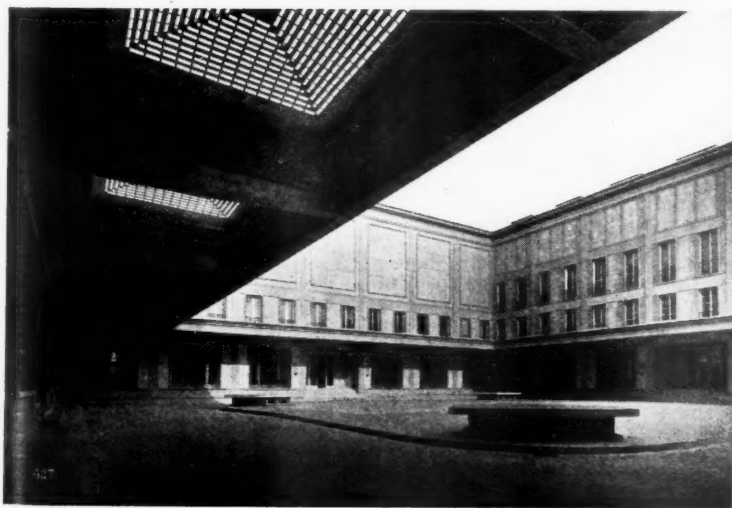


Left and right: 1911-13, the Theatre of the Champs Elysées, the proscenium and the main entrance hall



Left: 1936, Museum of Public Works, Paris; the curved end of the building which occupies an acute-angled site; construction was delayed by the war and the building was completed after it. The main structural members have a tooled concrete aggregate finish, the panel infilling being of concrete blocks. Above: 1922, the church of Notre Dame du Raincy

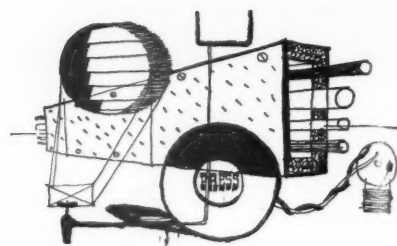
Below: left and right: 1933, the Mobilier National, Paris



The Effect of Services on Planning and Design

By H. G. Goddard, M.A. [F]

Read at a Meeting of the R.I.B.A. Architectural Science Board on 3 February 1948. G. Grenfell Baines [A] in the Chair



AS THIS lecture is entitled 'The Effect of Services on Planning and Design' it seems reasonable, in the first place, to consider what we mean by 'Services' when applied to a building. I must admit that it was only when I somewhat light-heartedly agreed to lecture at the Architectural Association on 'Services' that I came to consider the rather terrifyingly wide scope of the term: they are the bewildering collection of equipment and installations which finds place even in the simplest of modern buildings; everything, in fact, except the bare structure, and those items which may more properly be included as 'furnishings' or 'decoration'. Think what this includes: water supply, hot and cold, together with drainage and the sanitary fittings which accompany them; ventilation, other than natural ventilation, and warming, whether from a local or central source. Again, electrical and gas installations, and such mechanical installations as lifts and conveyors, or power transmission systems in factories and means of aural communication, such as the telephone, public address, and 'wired wireless'. Perhaps I may have forgotten some, but I think the list is formidable enough as it is. For the most part, they are of comparatively recent provenance, certainly in their present complicated form. The period of the past 150 years covers the majority, whilst some will be encompassed by this century alone: that is not to say that 'services' were unknown in architectural history; rather, they suffered an eclipse of nearly 1,500 years, between the decline and fall of the Roman Empire and their recrudescence in modern times.

The Romans did in fact develop them to a remarkable degree, they had much mechanical and structural ingenuity, and were very attached to their comforts; further, they had almost unlimited manpower, in the form of slaves, with which to carry out the building work in connection with these services, and to provide the motive power for them, when it was required. All, I think, will be familiar with the Roman water supply installations: their great aqueducts, their lead conduits, and with their extensive sewerage schemes; the *cloaca maxima* in Rome is almost a byword. In this connection, however, not everyone may know that the Romans made use of water closets on the trough principle, frequently used until recently for schools and institutions. Again, the Romans made use of the heated baths: the public *Thermae*, the private *Balneae* of the large houses. And they made use of central heating, on a system which is now, in its essentials, returning to favour. This is

the hypocaust, wherein heated air, and the products of combustion, are circulated through ducts formed in the walls and floors of the buildings; the heat being supplied from external wood-fired furnaces. Slaves tended the fires, and woe betide him who let them down on a cold day. The major-domo's whip over his back took the place of the thermostat and forced-draught blower more usual in heating installations today. Then, also, there is some evidence that they used lifts, albeit worked by slave power; in fact, it is thought that such equipment was used in the Colosseum in Rome to raise the wild animals from dens in the basement to arena level. The Romans were meticulous planners and great builders, and we find everywhere evidence that their installations for services were built in as an integral part of the building; they were, in fact, normally formed in what we now know as 'Builder's Work', and were not, as, alas, happens too often nowadays, the fabricated products of specialists superimposed on an insufficiently related structure.

The fall of the Roman Empire brought a return to more primitive ideas. Security was gone; self-preservation, not comfort, became the dominating factor of life in the Middle Ages. Hence, we find few examples of services of any kind; it is hardly possible to include the fire in the centre of the mediaeval hall, whence the smoke found its own way out through a louvre in the roof, under this heading, nor yet the row of privies discharging directly into the moat; whilst mechanical installations, such as portcullis and drawbridges and hoists for raising molten lead and boiling oil to the battlements, come rather under the heading of military equipment, which is, I think, beyond the scope of this paper. Alone we can find, as an influencing factor in planning, or perhaps I should say rather, in siting, the provision of an adequate water supply; but even this important item was not the subject of any extensive installation, often a primitive windlass and bucket were the sum total of the equipment employed. Even the 16th and 17th centuries, great periods as they were for architecture, saw scant progress made in services. The lack of even the most necessary type of service in the great palace of Versailles, in the latter half of the 17th century, is common knowledge, and typical of the period. The invention in this country, by an Elizabethan gentleman, of a valve water closet was before its time, and the provision of a public water supply in London, during the same reign, by Peter Morice, who installed water wheels and 'forcers' under

London Bridge, was but a small beginning, not followed by any progressive development.

The 18th century, however, was a century of progress. So much is ascribed to the Industrial Revolution that I hesitate to add anything more, but we can certainly see here the genesis of services as we now know them. A premium was set upon mechanical ingenuity; no longer were inventors looked upon as curious or even dangerous, as they had been in past centuries. Further, the greatest ingenuity, without financial backing, is of little avail: the Revolution brought with it new sources of wealth for application to new developments. It was a period of intense competition; progress was therefore rapid. In the space of a century, most of those improvements or innovations in services, which we now regard as commonplace, came into being. Water supply and sewerage came once again into prominence, after almost complete neglect since Roman times. Before the turn of the 18th century experimental coal gas installations had already been made, though for street lighting only, for it was considered far too dangerous to introduce into buildings. Indeed, those who wished to be in the van of scientific progress by illuminating their houses by this new means, in spite of the awful warnings of their friends, put the gas-jets outside the windows. Soon some were tempted, by the surprising absence of disaster, to place them inside; nor were the advantages of gas for industrial illumination long overlooked, and by 1815 a theatre had been illuminated by gas. To heat a building from a central source was not a new idea, but it had lain in abeyance for many centuries. Now, it was revised but in a somewhat different form, for hot water and steam took the place of hot air and flue gases as the medium of heat distribution; though more recently the possibilities of hot air have again been explored. Then, some 60 years ago, the force of electricity was first brought into use as a means, first of lighting as a rival to gas, then later as a source of power, or rather I should say more accurately, as a means of power distribution. In its beginnings it was notable for a certain lack of reliability, so much so that early installations were often designed to make use of both gas and electricity, in which the new brilliance of electricity was fortified by the greater reliability of gas. I came across, a few days ago, an advertisement for a delightful piece of equipment, entirely suited to a gentleman's residence of the time, of an 'electro-gasolier'. But from

these rather shaky beginnings was rapidly developed the enormous industry which now provides our electricity supply; how rapid the development we may gauge from the fact that it was only in 1901 that Dr. de Ferranti succeeded in producing a generator capable of producing, on a commercial scale, a pressure of 10,000 volts, and thus laid the foundations of economic long-distance electrical transmission.

At the same time, the Industrial Revolution was the *fons et origo* of vast and sweeping social changes. To relate these to services or to their development may seem initially irrelevant, but, in fact, I think there is a strong connection. The Industrial Revolution resulted in a great concentration of the population, from country to town, and this concentration led to a rapid increase in numbers. Primitive living conditions, which sufficed for low-density rural life, produced appalling results in a high-density urban existence. We have only to read a Dickens description of a 19th century tenement building, with its gloomy ill-lit stairs, its lack of even primitive washing facilities, its row of untended privies in the yard below, to see how social reformers were presented with an immediate subject for their attention. We need only consider contemporary descriptions of factory and mill life to understand how here, too, was a field for reform; the overcrowding, the lack of proper lighting, heating and ventilation; the absence of proper sanitary arrangements; the noisy, dangerous power transmission by ungaurded, flapping belts; worst of all, the carrying on of dangerous processes in conditions entirely devoid of precautions to protect the health of the workers.

A revulsion from these appalling conditions commenced that movement of social reform which has had such far-reaching results on buildings and their equipment, as on all else. On the one hand, it has brought about a general levelling of standards of living. In time past, the more wealthy lived in large houses in which many of the functions now performed by services of different kinds were carried out by hordes of servants; for the less wealthy, domestic conveniences were considered unnecessary. But not so now. On the one hand, few are wealthy and servants do not exist, yet a standard of comfort is demanded as great or greater than was before the case. And the once poor are now comparatively well-to-do and demand virtually the same standards of comfort and convenience. These demands can only be met by the judicious use of the various services available; they have become the servants, or perhaps I should say the slaves, of the community; space heating, proper bathrooms and indoor sanitation, with constant hot water supply, and easy disposal of refuse, to give but a few examples. No longer can it be said that it is no use giving a working man a bath for he will only keep the coal in it. Similarly, in industry, no longer are bad working conditions tolerated; proper heating and ventilation, sanitation and ablutions, protection from injury by machines or processes; for all these, services have to provide. So their

incorporation in buildings became imperative. When first they were reintroduced the installations were merely superimposed on buildings differing but little in planning or design from those obtaining in the 'no services' days. I am sorry to say that the superimposition of equipment on buildings not specifically designed to receive it is still by no means unknown; the liaison between architect and engineer is too often incomplete. But nevertheless, consciously or unconsciously, the incorporation of services and the constant introduction of improvements and new ideas have had a far-reaching effect. Thus the judicious use of these services confers a new freedom on planning and design; limitations imposed by various physical reasons can often be swept away, or greatly modified.

Let us take as a first example of how this may come about the smallest, most intimate, type of structure, the dwelling-house, and here I mean rather the dwelling of the ordinary person than the very large house. Examine the plan of a house of the older type; how much space internally is taken up by massive chimney breasts, for every room will have its fireplace and flue, and how cramping to planning is the presence of these unwieldy but, in the circumstances, necessary structures. If we can but take them away, or reduce them in size, how much more readily can we provide spaciousness in a small space. Services provide us with the means of doing this. Probably we shall have to retain one open fire, for the conservatism of this country demands it; I must admit I like nothing better myself. And we may have to provide a flue for the boiler which will give heat to the rest of the house and provide us with hot water, if this is not combined with the open fire. This second flue may also be eliminated if we are fortunate enough to be connected to a district heating system, or if we decide to use gas or electricity for space and water heating; the former apparatus may have the flues built into walls and partitions with special blocks, the latter, of course, needs no outlet of any kind. The recently reintroduced convector type of heater, at present much encouraged by the various Ministries concerned, also reintroduces a comparatively large structure in the midst of our house, and though careful planning can overcome the difficulties so introduced, yet it seems a retrograde step when other successful methods of background heating are at hand, and I must also say that I have fears that in the case of some systems damage to the inner flue through corrosion or fracture, or a badly-fitting soot door, may result in a supply of carbon monoxide being laid on to the bedrooms; a 'service' which would be most unfortunate in its results.

Now let us consider another salient feature of our 'modern' house. The windows are far larger than those of the older: not only does this give us the additional light which is now known to be healthful—I say 'now' advisedly, for at one time sunlight was thought to be injurious—but adds greatly to the appearance of space within. But these large windows would be intolerable draught producers, if one or another

of our services was not available to introduce a small amount of heat in the right place, along the bottom of the window, to counteract the down draught. I have explained already how modern demands for greater comfort have arisen, and how they have been met by services. But I would like here to put in a little plea against the abuse of a willing servant. We have available a variety of heat sources of far greater power and convenience than was formerly the case, but at the same time internal temperatures are normally maintained at a higher figure, and differential temperatures are therefore greater. How much the more important it is then to guard against unnecessary heat losses by careful insulation, which may be achieved by a suitable choice of building materials in the structure rather than added as an afterthought, and, especially, where we make use of the fine large windows, which we have just mentioned, I would like to suggest that the expense of double glazing is generally worth while. I know that the present system of building licences militates against any added expense and so produces false economy in this respect. I would like to put forward the suggestion that any expense incurred in respect of improvements in the thermal efficiency of a building should be made the subject of a supplementary licence.

This by no means exhausts the assistance that services can give the designer of dwellings. So far we have considered the single or terrace house; now let us consider flats. The large block of flats, on many storeys, is made possible, because services have provided a safe, rapid and effortless means of vertical transport, the electric lift. Until this was readily available, the height of blocks of superimposed dwellings was strictly limited by the climbing powers of the occupants, which were assumed to be in inverse ratio to their income. The whole position has been reversed by the lift; the top storey is often the most sought after and expensive. So here is a case where a service installation has removed a limitation on the designer; one which, from the point of view of town planning, is a very important one. There are many who would prefer to see a concentration of urban dwellings in large blocks of considerable height, separated by open spaces, rather than a more or less even layer of lower buildings sprawled over the whole area. Further, this concentration has other important effects in respect of other services and the convenience they can offer to their users.

In the first place, important savings can be effected in the more ordinary services: that is, in water supply, drainage, and the like; I assume that the prerequisite in planning is fulfilled, namely, that suitable vertical concentration of fittings is achieved, and that the services are planned with the building and not added as an afterthought. But besides these, other advantages accrue. District heating, or the heating of a considerable number of dwellings from one source, is a service which provides at once for the convenience of the user and for an increase in overall thermal efficiency; the slight losses from the distribution mains are

more than offset by the higher efficiency of the large boiler plant, under careful supervision, when compared with the small domestic boiler, with the bare minimum. Now a large amount of the capital cost of such a system is in the mains; the greater the concentration of dwellings the lower the cost of these mains and the lower the capital charge component of the heating bill to the consumer. Further, the use should be facilitated of alternative sources of heat, which may prove highly economical in use, such as the waste heat from thermal-electric generating stations, and heat pumps deriving their basic source of heat from rivers or ground water, and possibly also from the waste heat of industrial processes of electrical transformer stations and the like. The largest district heating system in Europe, that in Copenhagen, derives most of its heat from the former source, whilst in Zurich, the district heating of the Technical University and of the surrounding area is partly supplied with heat from the latter source. Both these systems are highly economical in operation, and at this time, when the expected standard of hot water supply and space heating is high yet fuel extremely scarce, confer considerable advantages. So, whilst I do not suggest that new urban development should necessarily surround power stations or be adjacent to water supplies for heat pumps yet, where alternative sites are available, there may be much to gain from such juxtaposition. The same consideration may obtain where, under some scheme of centralization, a thermal-generating station is no longer in use; the boiler plant may be immediately available as a source of heat for the surrounding district, with little expense.

Again, few things are less pleasant than the ordinary dustbin, whether to the user or to him who handles it, in the course of the disposal of its contents. Councils are having increasing difficulty in obtaining the services of men to undertake this work, and the cost of house-to-house collection is necessarily high; this is reflected in the rates of the area concerned. The Garchey system of disposal of solid waste is at present the most satisfactory; but in view of the equipment involved it is not economic to install plants of this kind to serve less than 100 dwellings, and the larger the size of the installation the less the cost for each unit served. The cost per unit is also much reduced, in the case of a system serving a multi-storey building, when compared with a system connected to a similar number of units distributed horizontally. In such buildings, too, the problem of the installation of one class of services, namely, baths and toilets, without wasting space on outside walls, better used for providing light and air for living-quarters, can be overcome by the introduction of another service, that is, electrical ventilation. Such an installation, allied to electric light, enables the designer to plan such apartments in the interior of buildings, which will be dark and otherwise useless, whilst such a lay-out frequently facilitates the concentration of the water supplies and drainage to the fittings, with resultant economy in cost and operation.

I know that there is in this country still a prejudice against flats amongst some classes. I think it may still be due to the lurking horror of the old-fashioned tenement, that is, a vertical concentration of dwellings without the facilities provided by modern services, and without the benefits of wide interspacing between buildings which modern planning strives to achieve. Time, and the conveniences conferred, will do much to reduce the prejudice, but there will still be place for lower buildings; terrace houses, or two or possibly three storey blocks; and in order economically to provide these with those services just described they may be suitably grouped with the taller blocks. Excellently planned schemes on these lines are to be found in Copenhagen. Here, groups of large blocks of flats are planned in conjunction with rows of terrace houses. Each group includes a central boiler house, whence heat is supplied to the whole unit. One of the boilers in each house is especially adapted to the incineration of rubbish, thus most of this unpleasant substance can be disposed of on the site, and handling reduced to a minimum. It may be well also to remember that household rubbish has a calorific value of some 4,000 B.Th.U's. to the pound, half that, in fact, of the peat fuel generally used in Denmark in the absence of British coal. Incidentally, the boiler house is usually combined with a communal laundry, a very economical and useful arrangement.

Clearly this concentration of dwellings is applicable rather to the town than to the country: and though many of the amenities conferred by services, hitherto the prerogative of the urban dweller, are now becoming available to the villager—electricity—main water—main drainage—perhaps gas—I do not think we should aim at that degree of concentration which would enable us to provide economically district heating or refuse disposal. In order to avoid undue wastefulness in the provision of the more ordinary services, village planning should not be allowed to straggle, but the principle of individual gardens, of uncramped lay-out, should be preserved. The advantages of district heating are less in the country, where indigenous fuel in the shape of wood is usually readily obtainable either cheaply or for the asking; whilst for kitchen refuse the homely pig offers an efficient substitute for the Garchey system, providing as it does a satisfactory return in calories, whilst that small amount of material unacceptable to the pig finds its way on to the compost heap, or into a simple incinerator. I am afraid this may be thought a digression, and some may not agree with me that a pig is a 'service' within the meaning of this paper, but I would like to say how important a piece of rural economy is the cottager's pig, and when you plan a village, see that provision is made for them; like other services, they should not be left as an afterthought. Comfortable, warm sties need not be unsightly and are far better for the pig than draughty, home-made shanties.

So far, we have considered the effect of services on the planning and design of the places where people live; now let us con-

sider their effect on the planning of those places where people work. We shall find these effects no less far-reaching and profound. Some of the effects are common to dwellings which we have already discussed, and to other types of building; some are new, and the special attribute of industrial and business premises.

Let us consider, first of all, office premises. Here, a very high concentration is probable; in large towns office sites are often of enormous value, and space utilization must be of the highest order on this account. Formerly, concentration was achieved at the expense of working conditions within; now, thanks to services, good working conditions can be achieved whilst still higher densities of working population are reached. Once more, first and foremost of the services which enable this to be done the electric lift comes to mind. The ultimate vertical development in office buildings, the American skyscraper, would scarcely be possible without them; we may recall the chaos which arose when 'elevator operators' in New York went on strike, in 1945. As with dwellings, the large glass areas which modern fashion demands can be achieved without discomfort within, and artificially ventilated and illuminated lavatories may be placed within the building, in space which cannot usefully be used for offices, and yet is well placed for the convenience of the occupants, an important point, for office letting space is worth at least £1 per annum per square foot in Central London, and if, due to bad planning, space which might be devoted to offices has to be given over to other purposes, a serious loss will accrue. Then, also, staircases may be placed within the building and artificially lit, though an obsolete clause of the London Building Act still demands reasonable natural lighting. Corridors may also be lit artificially; an economical and practical lay-out is to arrange them as in the form of a central spine between office spaces, with a false ceiling, above which ventilating ducts, pipes, wiring and other services can be run. And office space may, by virtue of good artificial lighting and ventilation, be made considerably deeper from outside to inner wall than was usually the case when natural lighting and ventilation were relied upon. A limit of 20 ft. depth was then usual, and even then the back part of the lower offices tended to be dark and gloomy. Now, in America a depth of 50 ft. has been used with success.

Still another major advantage is available to the designer of office buildings, which is made possible by the use of modern types of heating, that is, that he can plan his building to provide the maximum floor space, together with the necessary means of access, yet neglecting the internal partitions between offices. This would not be possible in an old-fashioned building, for such inconvenient objects as chimney breasts would prove a bar to this type of planning; yet it adds greatly to the usefulness of the building, for light partitions can be employed, easily moved from position to position to suit the requirements of changing tenants or varying use. The designer can so

plan his services that the maximum flexibility is achieved, so that they can usefully be used wherever the partitions are placed.

There is a point here which I would particularly like to make, that is in connection with air-conditioning for offices. Air-conditioning has many advantages for such buildings, and it may well be thought that the high cost of the installation is worth while in view of the benefits obtained. Briefly, the advantages are these: in the first place, the absence of employees due to the incidence of seasonal illness—the chief offender here is, of course, the common cold—is reduced, as shown by statistics, by at least 25 per cent. The financial saving due to this reduced absence should be approximately calculable. Again, the windows in an air-conditioned room must be kept closed; in a crowded, noisy city the reduction in noise has a beneficial effect on the output of work. At the same time the adoption of double glazing, with its saving in heat losses, is facilitated, and arguments amongst the staff as to which windows should be open and which closed, eliminated. Office staffs constantly divide themselves into two factions, those who demand that at all times the windows should be tight shut and the temperature raised to the maximum of which the heating plant is capable, and those who demand, come wind, come weather, that they should remain open.

Again, the absence of after-lunch somnolence is noticeable when air-conditioning is used; in present circumstances, rarely is the lunch responsible for this condition, but rather fatigue and anoxia caused by faulty ventilation. It is not possible to assess the financial gain from these causes, but some there must be. In respect of the last feature, however, the financial saving is clear and may be assessed. Interior decorations, in an air-conditioned building in an area where the atmosphere shows a high factor of soot and smoke pollution, may be expected to last between two and three times as long as those in a building relying on natural ventilation. Where work is involved which it is desirable to keep clean—a drawing office is a case in point—the argument in favour of air-conditioning is reinforced. We who work in Central London, near open windows in old-fashioned buildings, will all have experienced the large, oily smut which descends on our otherwise spotless and nearly finished drawing, only to smear, in a horrid indelible smudge, when we attempt to brush it off.

But all these gains may be offset—at least from the monetary point of view—if the building is not planned to receive the equipment involved. It is bulky equipment and cannot be stowed in some odd corner of awkward shape, required for no other purpose: at the same time, it must not be allowed to occupy valuable space which could be used profitably for offices. In particular, where a centralized plant is used the main vertical inlet and extract trunks are difficult to manage; they may prove really serious consumers of space, with a rental value out of proportion to their usefulness. In America there is a tendency to abandon

the centralized plant in favour of the unit type of air-conditioner which is readily available in that country, largely on these grounds, but equipment of the unit type is not manufactured in this country, and if we decide upon air-conditioning we must plan our building very carefully from the start to receive it, so that waste of space may be avoided as far as possible and the best use made, whether by increasing the depth of the offices, or other means, of the advantages conferred. Finally, though the roof may frequently offer a solution of the problem where to site ventilating equipment, it should surely be possible for the enclosure to form a part of the general design of the building. To climb to the top of one of the tall buildings near, for instance, the Embankment, and to look down on the roofs of the surrounding buildings is to see an extraordinary collection of little shanties and writhing duct work, neither technically efficient nor pleasing to the eye.

It may be interesting now to consider another type of building in which people work—the factory. Here again the introduction of the various services has given the planner renewed freedom of design, and the opportunity of providing far better working conditions than was before the case. Some of the improvements have been forced by legislation; the various Factories Acts, and the specific Acts governing various processes and controlling particular types of machinery; the products of reformers who rebelled against the evil and dangerous conditions in which workers were formerly expected to carry out their tasks.

It was the steam engine which begat the factory, as we know it now. Small units there were before, driven by water or even animal power, but it was not until the steam engine came that the great concentration of workers took place. Now power from the steam engine had to be transmitted to the machines, and this was done by means of shafting, pulleys and leather belts. Such an inflexible arrangement inevitably led to inflexibility of planning. Long lengths of shafting and long belts are difficult to manage, and angular drives involve gearing with its attendant wastage of power. From the power transmission point of view the rectangular multi-storey block, within which the machines are crowded in parallel rows as closely as possible, was the most economical, and, therefore, the most frequently adopted; we all know these great blocks, they are still to be seen all over the country, and some indeed are of very fine appearance; I think particularly of some early 19th century woollen mills in the Stroudwater Valley, between Cheltenham and Bristol. Such a lay-out, however, could, in the absence of modern ventilating systems and artificial lighting, only be dark and noisome within. It was the coming of electrical power which freed the factory planner from the tyranny of the shafting and permitted him a flexibility of lay-out hitherto unknown.

As a first step, there was a compromise arrangement in which the main engine, instead of driving the shafting direct, drives a generator which supplies current to motors

which, in turn, drive comparatively small units of shafting; these units, being separately driven, need not be parallel to one another, and the distance between them may be greater than if they were mechanically connected. Such a lay-out must clearly be more flexible than a purely mechanical one; it is still frequently employed, especially in textile factories, though it should be regarded as obsolescent. The greatest flexibility of all, however, is afforded by providing every machine with its individual electrical drive; by 'motorising' them, to use a current horrible word. Now the designer can plan his factory as he pleases, to achieve the maximum of light, air and convenience; he can place his machines, no longer necessarily parallel one to another, but exactly where they receive the best light and can be most conveniently operated. This flexible planning can be further facilitated by the use of the overhead busbar system of power distribution, which is of comparatively recent introduction into this country, though long used in America. It has the added advantage of eliminating the use of long and dangerous flexible cables when electric hand tools are used.

Again, though I favour natural lighting for factories where this is possible, there are many cases, especially in restricted or congested sites, where this cannot be attained throughout the building; here, as in the case of the office building, recourse can be had to artificial lighting and ventilation to produce highly satisfactory working conditions; witness the underground wartime factories, in which many worked long hours, for years on end, with no injury to their health. The problems of the designer who has to deal with processes which deal with dust or dangerous fumes are also eased by the appropriate use of services; for by their use he can withdraw the dust direct from the tool, or the fumes from the apparatus which produces them. Again, he may be able, in certain types of factory, so to lay out his plan that the installation of various types of heat-recovery equipment is possible. I give here, as an example, the case of certain factories in Switzerland for the processing of milk and fruit juices, which are planned with the utmost care, not only to facilitate the handling of the materials involved but also to facilitate this process of heat recovery. At least 50 per cent of the fuel and power consumption is saved by this means. In respect of fuel saving, town planning may also assist. The juxtaposition of suitable types of factory, wherein waste heat in one factory, recoverable but unwanted, may be made available to an adjoining factory where it is required, is a case in point; nor can the claims, not only of district heating, but of a centralized boiler plant providing metered process steam to a number of surrounding factories, be disregarded.

Finally, his planning will be influenced by the methods of handling material, or the organization of continuous production lines, all of which are dependent on mechanical services of one kind and another. Time does not permit me to go into this question in detail, but let it suffice

to say that such a variety of handling devices is available that he can, by careful selection of the most suitable and planning his building to make the best use of it, enable important savings in production costs to be made.

Now, let us consider briefly the effect of services on the planning and design of other types of building. I think that next to those types we have already considered, schools and hospitals have been more influenced than others. I have mentioned already that the days are past when light and fresh air were considered unhealthy; though at one time hospital windows were not even made to open, such were the dangers to the patients, anticipated from the introduction of a little fresh air into the ward. Now, fresh air and sunlight are part of many recognized treatments, whilst their value to the children's health in schools is also considered of paramount importance. Large windows which can be wholly opened therefore form an important feature of both types of building today. But the attempt to use heating apparatus which has as its effect the mere warming of the air would be bound to fail when used in conjunction with such windows, and the cure might prove worse than the disease. But their use is made possible by the adoption of radiant heating, wherein the air is no longer the vehicle by which heat is transmitted from the source to the person. Radiant heat may be provided either from high-temperature panels or low-temperature panels incorporated in walls, floors or ceilings; the important point is that it must be so arranged that the body receives the radiant warmth from more than one direction. Neglect of this point has caused considerable disappointment in time past; complaints of roasted fronts and frozen backs, or of hot heads and cold feet, have arisen. But once again it is a question of proper planning to make the best use of an available service, and there are many examples, both in schools, hospitals and elsewhere, where excellent results are achieved.

I am afraid that this is by no means an exhaustive disquisition on the effects of services on planning and design, but I have, I hope, said enough to give some impression of the subject, and, I hope, to stimulate the discussion which is to follow. Before I close I would like to say one word about the architect's position in connection with all these things. Obviously he cannot be expected to have the specialist engineer's knowledge of any particular branch. But, whatever the project, from the largest to the smallest, the engineers will present him with a bewildering choice of apparatus and installations which they claim will provide the results he desires. He must have enough knowledge not only to choose between the rival claims but to ensure that whatever system he chooses he incorporates it *ab initio* in his design; as I said before, the days of superimposition are past, leading, as it does, to disappointment and additional expenses. Also, incidentally, he must have the tact and patience to keep the peace between the specialists engaged on the installation of the various services on a job.

But of this I need say no more, for those are the qualities which alone, in these days, enable the architect to continue in practice, and not to retire to uninterrupted contemplation of the services of a mental hospital.

DISCUSSION

Mr. S. G. Kadleigh [4] said that never before had he heard the whole field of services covered in one breath, as it were. He felt that architects suffered from hearing about such matters in bits and pieces, hearing one expert on this and another on that, but never getting a view of the whole picture at one time. It was most important to bear in mind that the architect was the only person who could, if he so wished, view the whole picture of what was possible in the way of services in relation to the particular building which he was designing.

Most laymen knew the effect of services and expected certain results. They expected those services to work; they expected to be warm and that pipes would not burst, to take very simple instances. They had heard of central heating and of various magnificent technical innovations, and they expected to see in their own buildings the results of these developments. Did they get them? It was his personal impression that somehow architects had not really interested themselves enough in the general field, and in that respect it was very important to appreciate the factor of services in the planning, and the effect of the building itself on the services and of the services on the building. They were inseparable.

Mr. John Pinckheard [4] said that the lecturer had spoken of services which came through pipes and ducts and long wires, to say nothing of those that walked on four legs, but there was one which had not been mentioned but which was very important, namely, that which came in a sack on a man's back. Most of our buildings were heated by coal, and in his opinion ought to be so heated, though he did not imply that it was always efficiently done; but it was commonly the case that not nearly enough attention was given to how to get the coal in and what happened to the waste products when it had gone through the boilers. It would be an enormous advantage if buildings could be designed in future to make use of bulk deliveries of fuel instead of relying so much on the coalman.

The Americans had gone a long way further than we had in this field, probably for the reason that in America coal was in active competition with gas and oil, in much the same way that gas and electricity competed in this country. The Americans had greatly improved their service of coal into buildings. There was usually a mobile conveyor to take it to whatever height was desired, so that there was no man-handling of sacks with the waste of labour which took place in this country.

Mr. Hartland Thomas [F] said that Mr. Goddard had made a very neat com-

parison between feeding rubbish to a pig and feeding it to a boiler. In both cases, calories were produced and the rubbish was disposed of, but there was a very important difference between the two methods, because in the case of the pig the fertility of the soil was not lost forever, whereas in the case of the incinerator it was. Similarly, with combined systems of waste disposal, such as the Garchey system, where the material was, for example, disposed of at sea, the fertility of the soil was lost forever. It was one of the menaces of the modern age that we were year by year throwing away, and throwing away for eternity, the fertility of our soil.

The Chairman remarked that it was clear to him that the experience obtained in designing individual services had reached a point where development had outstripped integration. Any one service could be excellent, but the integration of all the services in an economic and seemly manner was something which called for a very different kind of knowledge from that of the individual specialist. This integration was undoubtedly the responsibility of the architect, and he was grateful to Mr. Goddard for pointing that responsibility out.

The architects were the people who had to do the integration, and that kind of integration was a distinct social trend today. We were integrating in many ways in our activities, in the buildings which housed them, and so on, and it was a little terrifying to feel that there was a danger of the process being carried so far as to amount to a sort of totalitarianism. He had been interested to notice, therefore, that decentralization in the matter of distributing air conditioning was coming more into favour, as opposed to a central air conditioning plant, so that the practice was growing up of having a number of small plants instead of one large one. That might be a small indication that integration could go too far and that things could become too big.

Mr. John M. Purser [4] said that in planning any house with a central flue to provide hot air heating to other rooms the fireplace nearly always came just where one did not want it. An example of that was to be found in the Portal house, where the only fireplace was on a length of wall about 4 ft. wide, completely surrounded by doors, so that only one person could get near it, and then only if the chair was put immediately in front of it. He thought that that was an example of a mechanical advance destroying the possibilities of reasonable living. It was thought necessary to plan a back-to-back fire and oven, with the kitchen sink and bathroom in direct contact, and the plan of the house as a place to be lived in went by the board. That raised the whole question of the attitude to be adopted in the planning of houses. There was a dreadful danger nowadays of bad planning based on the idea that we could live on air, like the angels; more and more clever gadgets were designed, but it was apparently assumed that we were free

from the degrading necessity of taking food out of the ground and putting it back again.

He had been glad to hear of the possibility of smaller self-contained air conditioning units. He thought that in 30 or 50 years' time it might be possible to have something which could be painted on the walls and ceilings which would give radiant heat.

Mr. G. P. Scott [A] referred to the obstruction and out-of-date views on the part of local authorities and public undertakings from which architects often suffered when designing buildings. In most buildings it was necessary to put the soil pipes on the outside, to their great detriment, because some out-of-date bye-law stipulated that they must not be inside the building. When it was a question of six dwellings one above the other it was necessary to have a 4-in. soil pipe, but a 4-inch soil pipe was also necessary for a single dwelling. He suggested that by reducing the size of the pipe and putting it inside a better job would be made of it. If it was possible to run six water-closets into one soil pipe of a certain diameter, it should be possible to use a smaller pipe for a smaller number of dwellings, and not have to change a rear elevation by putting it outside.

The water-supply regulations in this country varied from district to district. Some authorities would allow a fitting to be taken directly off the main, but in London, for instance, it was necessary to put in large storage tanks, often on the roof, where they were liable to suffer from frost. In America he did not think that storage tanks were used at all. It was possible to obtain apparatus which would flush a water-closet without any cistern; it was far neater and took up less room.

He felt that there ought to be a conference between architects, designers, public utility companies and local authorities so that the various regulations could be brought into line on a sensible basis, and so that the different authorities brought their ideas up to date.

Mr. G. P. Oddie [A] said he thought it was time to consider whether the A.S.B. lectures were to be architectural science lectures, and what sort of audience they were supposed to be for. It was a sad reflection on the state of the architectural profession as a whole that so few of the lectures given at the R.I.B.A. were of a really high learned standard. To compare the lectures published in the R.I.B.A. JOURNAL with those given before other learned societies aroused considerable misgivings about the claim of architects to be members of a learned profession.

Mr. L. R. Nutter [A], referring to convection heating, said that he and ten others were suffering from that form of heating at the moment. They were working in a temporary asbestos hut with a concrete foundation and bitumastic floor, and the heating was by small unit electric convection heaters. In the morning, when one came in feeling cold, the effect was not unpleasant. There were six electric heaters heating a hut 38 ft. by 13 ft.

By about eleven o'clock, however, a blanket of heat came down from the ceiling which had collected there through the currents of hot air rising, and by noon they were all suffering from headaches. They had overcome the difficulty by installing small electric fans in the ceiling to withdraw the hot air as it descended, but what they were doing was to remove that air and rely on their bodily warmth to keep themselves warm.

He felt that some better method of circulating that hot air would be more successful, but even so that air did not get down to the floor and warm the elements responsible for the coldness of the room. The air also became very dry, and they suffered from dry throats. He thought that the point was one which would bear greater investigation. Large numbers of heaters of this type were coming on to the market.

Miss R. Pocock [Student] said science should be 'got across' to architects; there was a temptation to put on popular lectures dealing with a sort of diluted science. That was not unreasonable, because the lectures were held in the evening and most of those who attended them had been at work all day. When the Architectural Science Board first started its lectures they were held on Saturday afternoons when people were fresher. She thought that in those days the standard of the lectures was very much higher; the lecturers could afford to be more technical.

Mr. R. N. Wakelin [A], Chairman of the Lectures Committee, said the Committee would be very glad to consider any suggestions sent to them for consideration, and he would like to thank Miss Pocock for her helpful remarks.

Mr. C. W. Kempton [Student] said that it was well known that in the office in daily practice a tremendous amount could be learnt from discussion by architects amongst themselves, and probably more than could be learnt from any lecture. Although the A.S.B. lectures which he had attended so far had given him a certain amount of food for thought, he had learnt considerably more from the discussions which followed them.

Mr. E. York asked leave as a visitor to refer to a few of the matters which had been raised. One of these was water supply. In America, use was made of water storage cisterns, but the position in America was very different from that in this country, because the Americans had any amount of water and could afford to waste it, whereas in England there was no water to waste. That was the reason for what some people

considered to be pettifoggish regulations. In America they normally used three gallons for flushing a water-closet, as against two gallons in England.

Mr. H. G. Goddard, in reply, said he was very interested in the idea of bulk deliveries of fuel, but thought the problem did not arise in this country in quite the same way as it did in America, partly because, as had been said, solid fuel was not in the same kind of competition with gas as it was in America, and also because large buildings requiring expensive installations were not likely to use solid fuel for heating. He had also been very interested in what had been said about soil fertility. It was absolutely true that we were constantly taking things out of the soil and not bothering to put them back. Pessimists said that that could only lead to eventual disaster. The processing of sewage so that it could be returned to the soil was a very important matter, which had been successfully taken up in some places, but it did not seem so far to have attracted the attention which it deserved.

On the question of soil pipes, he had not seen a 2-in. soil pipe used, and thought that it might be too small, but both 2½-in. and 3-in. soil pipes were successfully used in America, and he believed that they were generally supposed to be less liable to blockage than the 4-in. pipe. If a pipe was to become blocked at all, it was much better that the blockage should take place in the vertical soil pipe than in some inaccessible place.

The model bye-laws did permit internal soil pipes. If a number of local authorities still forbade them, it was probably because their bye-laws had not yet been revised to come into line with the model bye-laws. When the five-year period during which each council had to revise its bye-laws had come to an end, he thought that all of them would allow internal soil pipes. It was provided that they must be in cast iron, or, if in any other material, lead or copper, they must have a metal covering to the chase in the wall in which they were put.

Reference had been made to the varying regulations of water undertakings. There was a strong movement at present to nationalize water supplies. Whether that would be a good thing or not was not a matter on which he desired to express an opinion, but at present there were over 3,000 different water undertakings in this country, each with its own little blue book of regulations, and that was a nuisance to everyone.



'... a comfortable warm sty in a rural service'

Charles Reilly

An Appreciation by
Prof. L. B. Budden, M.A. [F]

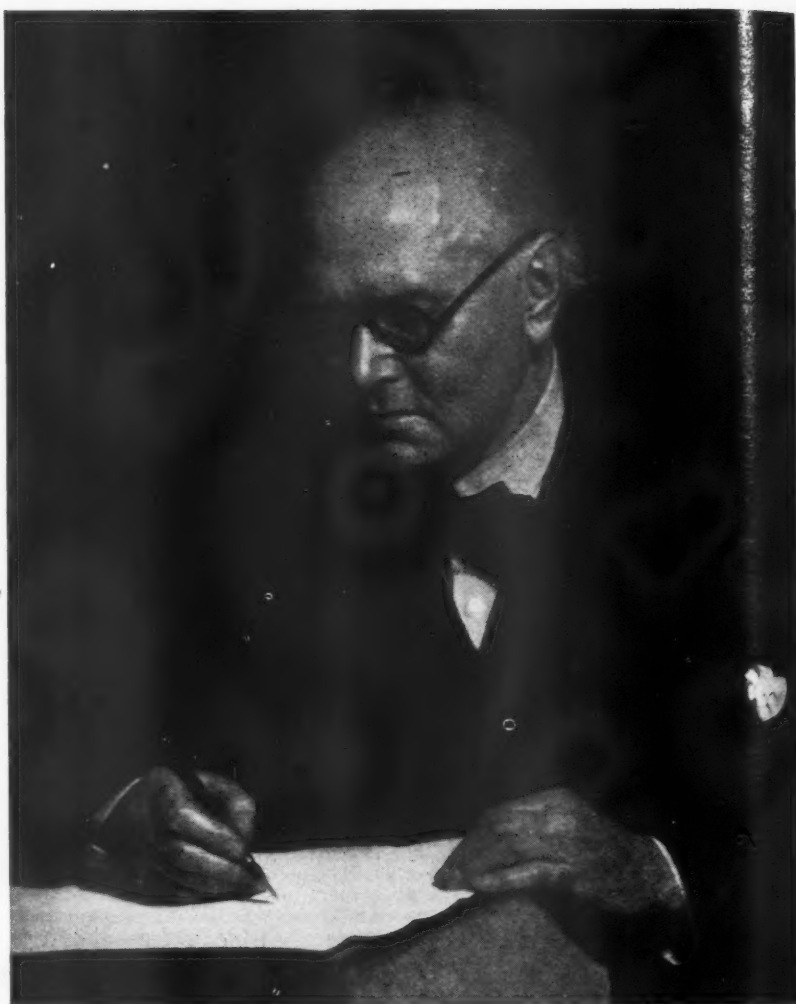
IN THE last issue of the JOURNAL the outstanding achievements of Reilly's career were summarized in an obituary notice that was intentionally restricted to a record of fact. That record spoke for itself. What I have now been asked to add to it is a personal appreciation of his powers and character as I came to know them over many years.

Reilly in no ordinary measure possessed vitality, a nervous restless energy that some found exhilarating and others exhausting. For the great majority of his students he was a stimulating force: he heightened their sense of the importance of architecture and, by infecting them with his own enthusiasms, he made life seem fuller, richer and altogether more exciting. This he could do quite naturally and convincingly because his approach to architecture was fundamentally romantic: he saw things more than 'tuppence coloured' and managed to make others share his vision.

In the course of his tenure of the Roscoe Chair at Liverpool his views as to the kind of architecture which should be taught and practised in the 20th century were, under successive influences, modified and, in the end, radically changed. English Palladian, late Georgian, Neo-Grec, American *Beaux Arts* Classic, each of these modes of design in turn fired his imagination and claimed his allegiance. Then in the later years of his direction of the Liverpool School his sympathies were engaged by work that was contemporary in spirit and technique and he became and remained an ardent champion of the virtues and possibilities of the new international architecture. In fact, he reached his ultimate aesthetic position by a route that had much to commend it, even if toward the end he found himself in the company of a somewhat odd assortment of fellow-travellers. And whatever inconsistencies may have characterized his teaching—and no teacher worth anything is ever wholly consistent—it had one over-riding virtue: it presented architecture never as a dull, prosaic business, but always as an affair of high adventure.

What especially endeared Reilly to many of his students was his constant concern for their advancement and his genuine pleasure when good fortune came their way. He was always the first to congratulate—and the first to spread the news. For he had a naive love of success that was part of his romantic temperament. Himself a master of the art of publicity—to which he attached the greatest importance—he used its resources to the full not only for his own benefit but for the benefit of his protégés, in whose careers he took a possessive pride that was half that of a father and half that of an impresario.

As a journalist he had an initial advan-



tage which few writers and still fewer architects possess: he actually enjoyed writing. The volume of his output was astonishing and what he wrote was almost invariably readable. He, at least, belied the saying that easy writing makes hard reading. His articles might be—indeed usually were—dashed off at enormous speed, sometimes with a fine disregard for the nicer points of grammar and syntax, but they were so lively, so amusing and so provocative that their appeal was immediate and general. It is probably true to say that Reilly gained almost as many friends by his contributions to newspapers, magazines and the professional press as he did by personal contact. He had the rare gift of making architecture comprehensible and interesting to laymen; and in exploiting that gift he performed a great educational service, directly for the community and indirectly for the profession.

Although he could on occasion pay tribute to architectural scholarship, he was not himself greatly interested in historical research; nor did he as a rule over-value factual accuracy. On most issues, political

as well as aesthetic, he preferred to be the warm and generous-hearted partisan rather than the objective judge. Often he seemed to reach his conclusions through his emotions rather than his intellect; and in architecture certainly his emotions served him well.

He was formidable in controversy for he had few inhibitions and it was his custom to throw everything into the fray. When it was all over and he had won—as in most cases he did—he freely forgave the luckless victims of his invective in a manner that took away their breath—and usually their resentment at the same time. No one ever indulged in the luxury of indiscretion more habitually nor escaped its normal consequences more completely.

Essentially urban and gregarious, he was never really at home in a rural environment nor happy away from people for any length of time. As someone once said, in the country he was 'like a caged bird'. He delighted in parties, in the society of artists, actors and actresses, and in all the excitement and encounters of town life. In conversation he

could be witty, malicious and charming—and was commonly all three. He could also be genuinely kind and helpful to those who needed his aid and sought it.

The range and variety of his activities—which included participation in the affairs of the Liverpool Repertory Theatre from its foundation—left him little time to engage in practice; and, although his name was associated with several well-known buildings in London—Devonshire House, Peter Jones' shop in Sloane Square and the re-built John Lewis store in Oxford Street—the only works which were wholly his own were certain early commissions, such as the Students' Union for the University of Liverpool and the Church of St. Barnabas in Dalston. The significance of these examples of his personal abilities as a designer is that they show that, if he had cared to concentrate on the practice of architecture, he could have contributed vigorously to it. Furthermore, as some of his old sketch books reveal, he was a naturally forceful draughtsman, though he never fully developed his powers in this direction either.

For long he had been fortunate in a con-

stitution of more than ordinary strength, but even his physique could not indefinitely stand the demands which his adventurous energy made upon it, and in 1933 he was compelled by ill-health to retire five years before his tenure of the Roscoe Chair was due to terminate. Rarely can retirement have been less synonymous with repose. From the time, over 20 years earlier, when he had persuaded the first Viscount Leverhulme to endow a Chair and Department of Civic Design as an adjunct to the Liverpool School of Architecture, Reilly had always seen town planning as an extension of the art of architecture and it had remained one of his major interests. Now it became his chief pre-occupation. He intervened constantly in public discussions of planning problems; he developed the concept of the village green as a nuclear unit of communal planning; and he became a popular authority on planning policy and an ever-increasing anxiety to Ministers and Senior Civil Servants. It was in vain that they protested in private that he now had too much leisure and too little responsibility. What he said carried too much weight with ardent sup-

porters in the country to be ignored and he could not be suppressed. It was his last campaign and he enjoyed it thoroughly.

Three things in his strenuous, combative life gave him especial pleasure; the award of the Royal Gold Medal, the conferment of a knighthood, and the proposal to found a Scholarship and Medal in his name in the School which he had made so famous. The first he felt to be not simply a recognition of his own achievements, but—as it was—an acknowledgement of the importance of architectural education itself. The second honour gratified his histrionic sense: it was a panache which he sported with an appropriate swagger. And the third touched him profoundly because it held the promise—yet to be fulfilled—of a permanent memorial in a form after his own heart.

He faced his final ordeal with a courage which none of his friends will ever forget. He had no illusions about his chances of survival yet to within a day or two of his operation he wrote letters to old colleagues and students, letters that were as full of gaiety and audacity as ever. His was a spirit that not even death could daunt.

Practice Notes

Edited by Charles Woodward [A]

IN PARLIAMENT. Building Industry. (Materials and Wages.) Asked what had been the percentage increase in the cost of building materials and wages in the building industry, respectively, since the date at which he first fixed at £10, the financial limit at which he permitted building repairs to be carried out without a licence, the Minister of Works replied: Since the limit of £10 on building work permitted without a licence became applicable to the whole country on 1 August 1945, the Board of Trade Index of Wholesale Building Materials prices have risen 36 per cent up to December 1947. During the same period standard hourly wage rates for building craftsmen and labourers rose approximately 25 per cent to 28 per cent according to the grading of the district in which wages were payable. (9 February 1948.)

Town and Country Planning Act. (Appointed Day.) Asked whether he was able to announce the date of the Appointed Day under the Town and Country Planning Act, 1947, the Minister of Town and Country Planning replied: Yes. The Appointed Day will be 1 July 1948. The Secretary of State for Scotland and I have just made Orders to that effect. I had perhaps better make it clear that the Central Land Board is not yet in a position to deal with correspondence or inquiries. The Secretary of State and I will arrange for a public announcement to be made when the Board opens for business. (9 February 1948.)

Factory Projects. Development Areas. (Revoked Licences.) Asked how many licences for factory projects had been revoked in each of the Development Areas; and what

was the total value involved for each area, the Minister of Works replied: I have been asked to reply. Up to 10 February licences for factory projects in the Development Areas have been revoked as follows:

Area	Licences revoked	Total value of licences
North Eastern ..	9	£118,907
West Cumberland ..	1	6,900
South Wales and Monmouthshire	13	574,745
South Lancashire ..	3	14,250
Scotland ..	12	246,115
	38	£960,917

Land Acquisition (Compensation). Asked whether he was aware of the hardship likely to arise from the operation of the London and Middlesex (Improvements, etc.) Act, 1936, and Acts incorporated therewith, since compensation payable thereunder was based on 1939 values; and whether he would seek means to alleviate this hardship by introducing legislation to bring the compensation terms more into line with present-day values as has been recognized in the Town and Country Planning Act, 1947, and the Requisitioned Land and War Works Bill, the Chancellor of the Exchequer replied: I have been asked to reply. The compensation payable on compulsory acquisition by a local authority is governed by the general law in force at the date of the notice to treat. The 1939 standard did not apply where notice to treat was served before 17 November 1944. Under Part 2 of the Town and Country Planning Act, 1944, compensation was based generally on 1939 values (with supplements in certain cases) where notice to treat was served on or after 17 November 1944, and Part 5 of the Town and Country Planning Act, 1947, substituted a basis of current restricted values where notice to treat was served on or after 6 August 1947. These provisions apply to

acquisitions under the authority of the London and Middlesex (Improvements, etc.) Act, 1936, as to any other acquisition under general or local legislation by a Government Department or public or local authority, and I am not aware that any special point arises. (5 February 1948.)

Private Builders (Permits). Asked if, in the near future, he anticipated allowing permits for building houses by private builders in districts where there were no requirements for miners' or agricultural labourers' dwellings and where local unemployment might result, the Minister of Health replied: As indicated in a circular to local authorities of which I am sending the hon. member a copy, the placing of fresh contracts must for the present be strictly controlled, but, while priority will be given to houses for miners and agricultural workers, the contracts will not be limited to these houses. Asked further whether he was aware that there were cases of this sort happening and that we wanted the houses, but we did not want unemployment, and surely the right hon. gentleman's policy was very short-sighted, the Minister replied: On the contrary, the accelerated rate of completion of houses is itself evidence of the success of the policy. (12 February 1948.)

War Damage (Receipts and Payments). Asked what were the total amounts paid in under the War Damage Act, Part 1; and what were the amounts paid out at the latest convenient date, the Chancellor of the Exchequer replied: Up to 23 January 1948 total receipts were about £195 million and total payments about £626 million. (3 February 1948.)

TOWN AND COUNTRY PLANNING ACT, 1947. The Law Society have published a memorandum entitled 'Introducing the Town and Country Planning Act, 1947'.

It has been written by Mr. Desmond Heap, LL.M., L.M.T.P.I., Comptroller and Solicitor to the Corporation of the City of London. The memorandum is not intended to be an exhaustive summary of the Act but all the essential features have been arranged in as readable a form and order as possible. It is a publication which will prove most useful as a general guide to the Act, and the sections of the Act are indicated in brackets so as to provide easy reference. It can be obtained from the Law Society, Law Society's Hall, Chancery Lane, W.C.2, price 2s. 9d. post free.

CODE OF WELFARE FOR BUILDING OPERATIVES. The National Joint Council for the Building Industry at its meeting on 28 January 1948 decided to issue an agreed Code of Welfare relating to the provision of proper and adequate welfare arrangements on all building sites. The Code will apply to building sites with the same authority as a National Working Rule and will come into force on 1 March 1948. The Code includes provision for shelter during inclement weather, accommodation for clothing, accommodation and provision for meals, provision of drinking water, sanitary conveniences, washing facilities, and first-aid appliances. Proper site organization is to include such drainage as will keep the site reasonably dry and free from standing water, paths and roads as will give reasonably clean access to the work under construction, and all reasonable steps that will facilitate smooth working and will minimize discomfort and risk on the job.

THE ACQUISITION OF LAND REGULATIONS. The Treasury have made Regulations for the adjustment of compensation for War Damaged Land (Statutory Instrument, 1948, No. 207, Land, Acquisition of, England, Assessment of Compensation).

The Regulations are intended to eliminate the overlap between the owner-occupier supplement under the Town and Country Planning Act, 1944, and the increase of a converted value payment under the War Damage Act, in cases where the property is compulsorily acquired, under a notice to treat served after the commencement of the Town and Country Planning Act, 1944, and before the passing of the Town and Country Planning Act, 1947. The Regulations apply also to land acquired by agreement. (Obtainable at H.M. Stationery Office, price 1d.)

ARBITRATION. COSTS OF THE REFERENCE. In a paper read before the Institution of Civil Engineers by Mr. E. J. Rimmer, M.Eng., B.Sc., A.M.I.C.E., Barrister-at-Law, on the subject of Arbitration, he dealt with the Costs of the Reference. With his permission the following extract is made, and acknowledgement of his courtesy in allowing publication is extended to him.

The last questions the arbitrator must determine are who shall pay the costs of the arbitration—that is, the arbitrator's fees, the hire of the room, and the shorthand notes and transcripts (where agreed to be

part of the costs of arbitration); whether one party shall pay the whole or part of the costs incurred by another party in contesting the case; and, if so, the scale on which they are to be paid. These costs may loom very large in a heavy arbitration, and the questions to be determined by the arbitrator on these matters may be of great importance. The arbitrator, unlike the Courts, is bound by no rules on these questions and his decisions sometimes cause considerable surprise to legal practitioners. The general rule adopted by the Courts is that 'the costs follow the event', that is, that the costs of bringing an action should be paid to the successful litigant by the loser, and this rule applies, with certain qualifications, whether the party succeeds as to the whole or only as to part of his claim. The justification for this rule is that, as it was necessary for the successful litigant to bring the action in order to recover the amount which has been awarded to him, the mere fact that he claimed more than the sum awarded is no reason for depriving him of any costs.

The most important qualification of this rule is that if a defendant at any time before the end of the hearing offers and pays into Court a sum as great as that awarded, then, as it was not necessary for the plaintiff to continue any proceedings after the date of the payment, the order should be that the plaintiff's costs up to the date of payment in should be paid by the defendant, but the costs incurred thereafter by the defendant should be paid by the plaintiff. Another qualification of the general rule is that, if the case involves several issues and the plaintiff succeeds on some, but fails on others, then, although the plaintiff will be entitled to be paid his general costs of bringing the action, he should pay the defendant's costs of fighting the issues upon which the plaintiff fails. Under this last rule the amount of the costs which the successful litigant has to pay will (under the Taxing Master's direction) depend upon the time spent in trying the issue or issues which the plaintiff has failed upon; and therefore failure on a subsidiary legal issue, upon which there has been no contest on facts, may often be entirely disregarded by the Judge.

The rules and practice of the Court have so much reason to support them that it is surprising that arbitrators so often disregard them and choose to make their decisions on the basis of comparing the amount claimed with the amount awarded—a basis which must work the greatest injustices. If an arbitrator awards £5,000 in a case where the claim is £10,000 and decides that, in consequence, the respondent should pay only half of the claimant's costs, or even that each party is to pay their own costs, he is, in effect, awarding a sum less than £5,000. Yet the whole of the expense of the arbitration was brought about by the failure of the unsuccessful to pay, or to make an offer to pay, a sum to the amount awarded. Similarly, should an arbitrator award £5,000 in a case where the respondent has, before the bulk of the costs

were incurred, made a firm offer to pay £5,000 or more and the costs of the arbitration to that date, so as to avoid further litigation, then, if he does not order the claimant to pay the costs of the respondent from the date of the offer, he is penalizing the respondent beyond the sum which, by his award, he thinks should have been paid.

It is true that there is no procedure in arbitrations for payment into Court, but, if a respondent sends in writing to the claimant a clear and unambiguous offer to pay a certain amount and to pay the costs of the arbitrator and claimant up to that date, it is as effective, if accepted, as an award for that sum.

It would be most undesirable that an arbitrator should ask either party to tell him if an offer has been made, but he may be told by the respondent that this has been done and be asked to receive in a sealed envelope a copy of the letter making the offer and to consider it after deciding what sum he shall award, and before he makes any direction as to costs. It is quite proper and reasonable for the arbitrator to agree to this.

The question of costs becomes more complicated when there is not only a claim but also a counter-claim, but, generally speaking, the Courts regard the counter-claim as a cross action and apply the same rules to that as to the claim, and it would therefore be good practice for an arbitrator to do the same. Thus, if the claim and counter-claim were both to succeed, it would be proper to award (subject to the qualifications referred to) that the respondent pay the claimant's costs of the claim and the claimant pay the respondent's costs of the counter-claim. The arbitrator may, and sometimes should, also consider whether the conduct of an obstructive party or a late amendment of the pleadings does not merit some visitation of costs, and this is especially necessary if the eventual award should be in favour of the party who has been obstructive or has so amended his pleadings.

Having decided how the costs are to be paid, the arbitrator must consider the scale on which they are to be paid. He is under no restriction in this matter and may award them on the scale of party and party costs or solicitor and client costs, or may even, if he wishes, undertake the onerous duty of taxing the costs himself, in which case he can adopt any standards he thinks suitable. But an arbitrator, knowing very little of the methods of payment in the legal profession, and having available for the purpose the services of the Taxing Masters of the High Court, will generally be unwise to embark upon this task himself. If his award is for 'costs to be taxed', they will be taxed by a Taxing Master on the party and party scale, which is considerably lower than that of solicitor and client costs. Therefore, if he intends that the higher scale should be adopted, he must direct payment of 'costs to be taxed between solicitor and client'. When the award is signed, it should be stamped with a ten shilling stamp.

Correspondence

COVENTRY CATHEDRAL

Sir,—In Mr. Taylor's review of the Report of Lord Harlech's Commission in your January issue, he seems to be quite unaware of the fact that it has been officially amended, so that there may be a perfectly free choice of character and style, as was announced in your issue of August 1947. His fears of the result of any restriction to 'the English Gothic tradition' are therefore quite groundless.

Mr. Taylor concludes his review by expressing his own view that 'the calcined walls and tracery of the ruins form a perfect setting' to the undamaged beauty of the steeple, and that they should be preserved and improved by planting trees among the heaps of rubble. Anyone who knows these pathetic ruins must surely feel that any attempt at their preservation could only result in a melancholy memorial of Nazi frightfulness, their soft sandstone gradually decaying under the weather. Fortunately, the Harlech Report refused this morbid and defeatist view of the ruins, and wisely decided that they should be cleared away and the new cathedral built on their site.

Mr. Taylor's other suggestion to build the new cathedral on the open space to the north would hopelessly crowd up the whole site, so that the cathedral itself could not be seen properly from any point, and the best view of the adjoining Holy Trinity Church would be blocked.

The Report shows that the Commission fully realized that the magnificent steeple will inevitably dominate the whole group of new buildings, and that these should be designed in proper architectural relationship to it, rather than leave it in its present gaunt and forlorn state.—Yours truly,

EDWIN F. REYNOLDS [F]

PRIZES AND STUDENTSHIPS CRITICISM

Sir,—A reading of Mr. Ralph Tubbs's criticism of the designs submitted for the Prizes and Studentships moves me to indignation.

He complains that 'the greater part of the work submitted is commonplace or dead'. To encourage the competitors to attempt better things he prefaces a singularly uninformative criticism with some naively amateurish, not to say pretentious, remarks based on what he understands of a philosophy which is nowadays commonly regarded as somewhat out of tune with events, and goes on to characterize these remarks as 'no personal hobby-horse', but as 'the disclosure of the great theme that underlies all the fertile philosophies of architecture'.

In order to make room for this important disclosure he dismisses the prize-winners in the competitions for the Alfred Bosson Research Fellowship, the Godwin and Wimperis Bursary, the Hunt Bursary and the Henry Saxon Snell Prize with perfunctory congratulation, and leaves the unsuccessful competitors without a word of guidance. Is this how he practises the 'awareness' that he

preaches? Does he really think that vapourings about the 'Life-Force' will inspire an unsuccessful competitor, who has maybe spent months of patient research on a subject of his choice, to try again? Or will such a competitor be more likely to judge the Institute according to the standard set by the Critic, and feel that there is no point in competing?

Finally, I am distressed, not only by Mr. Tubbs's remarks on the subject of the Tite Prize, but also by the decision of the Committee to award the prize for a design 'in a contemporary natural way'. I will not enter into a discussion of what can possibly be meant by the words 'contemporary' or 'natural'. I will only say that there are many members of the Institute actively engaged in the business of teaching, who have tried what would appear to be the Committee's way, and found that it does not work; that the discipline of designing in a given style, and of trying to understand 'philosophies and conditions entirely differing from our own' has been found by long experience to be one means of creating that 'awareness' the lack of which Mr. Tubbs deplures; and that there is a fairly widespread 'contemporary' belief (contemporary, that is, with Mr. Tubbs) that he who takes 'Nature' for his guide, in the sense in which Mr. Tubbs appears to understand the word, will end by housing us all in caves, and thus rendering the practice of architecture superfluous.

—Yours faithfully W. A. EDEN [A]

A copy of Mr. Eden's letter was sent to Mr. Tubbs. Detailed criticism of students' designs was made by Mr. Tubbs but omitted from the report of his speech. Ed.

Sir,—Mr. Frank Risdon last month stated that my paper on the Prizes and Studentships was 'singularly inappropriate' and for the student competitors 'disappointingly negative in the extreme'. Apparently the students thought otherwise. 'Such was our enthusiasm for the matter of your address that we decided at once to write to you', says one group of students in a letter to me, and the students of three different schools of architecture have asked me to talk to them since reading my paper.

Mr. Eden this month gives me a really good whacking with a Doric column and apparently favours 'the discipline of designing in a given style'. It is quite like old times to find that in 1948 I am still involved in the Battle of the Styles.—Yours faithfully,

RALPH TUBBS [A]

Sir,—It is disturbing to read in the last issue of the JOURNAL that the best students are still refusing to compete for the R.I.B.A. Prizes and Studentships. While I have no doubt Mr. Tubbs has good reasons for his view that the R.I.B.A. is not to blame for this state of affairs, I cannot help feeling that the fault may not lie wholly with the students and that there might be some underlying cause for their lack of interest. May I suggest that it may have something to do with a tendency in the older generation, from whom the juries must necessarily be drawn, to place an undue emphasis on planning?

For the last 40 years or more the emphasis on the plan has been growing and for some years now it has, I think, resulted in a seriously unbalanced view of architecture. Planning is tending to become something in itself, almost a separate two-dimensional art divorced from the structure. In architectural competitions especially the third dimension has for a long time been of practically no account, and there is a very general tendency to think that if the plan is made to work, then whatever arises out of it must automatically be architecture. There are many exceptions, of course, but I think the doctrine that the 'plan is the thing' has a stronger hold on most of us than we realize. Is it not possible that the more intelligent students sense that this conception of architecture as the plan is as unbalanced as the Victorian conception of architecture as the elevation and therefore they will have no truck with it?

I am convinced that it is this excessive concentration on the plan, or rather its corollary the neglect of structure, which causes so many of the best students to fall for the architecture of the French modernist school. There they may sometimes find architecture in which the structure and the plan are interdependent; if they notice its defects they do not worry overmuch because they have after all found something which is essential to architecture. If we cannot give them this essential they will not let us teach them; they prefer to grope after M. le Corbusier at second or third hand. And that, it seems to me, is what is happening now, not only in connection with the R.I.B.A. Prizes but in architectural education generally. What future is there in this sort of thing, where practically nothing is seen or passed down at first hand?

Might it not be worth while to try another approach? I suggest for a start that the subjects set should present a reasonably simple planning problem, well within the capabilities of the better students, and the awards should be made not primarily on the success of the plan but upon the whole architectural conception, by which I mean the organization of plan, structure and economy, considered as an indivisible whole. Such a change would, I think, do something to restore the confidence of the students, and it might even produce some remarkably good plans.—Yours faithfully,

RAYMOND ERITH [F]

ENTRY TO THE PROFESSION

Sir,—A case has been brought to the notice of my Committee in which a young lad had been taken into an architect's office and encouraged to think that he could become an architect although he had not attained the standard of education required for probationership of the R.I.B.A. It is suggested that members should always explain the examination requirements of the Institute to young people who wish to enter the profession, and where possible, to their parents.—Yours faithfully,

CHARLES J. CABLE [F]

Chairman, Tunbridge Wells Chapter, South Eastern Society of Architects



Joinery for the new House of Commons. Above, a carver at work on a ceiling boss, and, right, on the Gallery cresting



Review of Construction and Materials

This section gives technical and general information. The following bodies deal with specialized branches of research and will willingly answer inquiries.

The Director, The Building Research Station, Garston, near Watford, Herts.

Telephone; Garston 2246.

The Director, The Forest Products Research Laboratory, Princes Risborough, Bucks.

Telephone; Princes Risborough 101.

The Director, The British Standards Institution, 28 Victoria Street, Westminster, S.W.1.

Telephone; Abbey 3333.

The Technical Manager, The Building Centre, 9 Conduit Street, W.1. Telephone; Mayfair 8641-46.

Joinery for the new House of Commons.

Last month representatives of the technical Press met at the offices of Messrs. Green and Vardy, who are making the carved oak panelling and other joinery for the Chamber of the new House of Commons. Sir Giles Gilbert Scott was present, and gave a general description of the work, illustrating his remarks with his drawings. Sir Giles said he had given particular consideration to the colour of the oak, to avoid any likelihood of its turning a little yellow, which it would do under exposure to the air; he was having it sprayed with a solution of sulphate of iron, which would give the surface a permanent slightly grey tint.

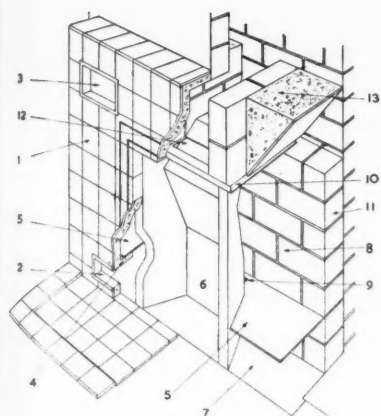
Most of the oak came from trees some 300 years old, and the selected pieces are of exceptionally beautiful appearance. They have been carefully kiln-dried, remaining in the kiln for some 14 weeks, where they were subjected to the normal processes. No piece is thicker than 4 in. The thoroughness of the treatment was borne out by the carvers, who said the wood worked the same throughout the whole of its thickness. The

Forest Products Research Laboratory have collaborated in the more technical aspect of the work. The party went through the various shops and mills, where the wood was being prepared and carved by hand. Sir Giles's designs were first set up in sample models, some in wood and some in clay, and when finally approved they were given to the carvers to follow. Thus the various sections carved by different craftsmen, although looking all the same to the unobservant, yet show minute differences due to each craftsman's own interpretation of his model. At the beginning of the work Sir Giles had explained his wishes regarding the actual carving of his designs, which are in the Gothic tradition; for instance, he wanted the ends of the foliations to be slightly scooped out instead of being flat, and in a long run of panelling these little touches give life and sparkle. Sir Giles does not feel that a very smooth finish is correct for Gothic woodwork, and so his panelling has been lightly wire-brushed instead of sand papered. Some 12,500 cu. ft. of oak have been brought into

Messrs. Green and Vardy's shops, but it is calculated that only about 8,000 cu. ft. will be contained in the finished work. It was pleasing to see the interest the carvers showed in their work; they were evidently taking pride in it, feeling that the result would not be a soulless outpouring from a machine, but would contain something of their own craft personalities. Some of the carvers are men who had retired, but who returned to work on this interesting and unique project.

The Convective Fireplace. The use of the principle of convection in connection with heating stoves has been so much in the minds of architects that they may be pardoned if they imagine that there is nothing much new that can be said about it. But the Convective Fireplace Company think otherwise. Their stove is a normal one with a tiled surround, but in the surround four grilles are inserted, one at the bottom and another at the top, on each side, as indicated at 2 and 3 in the accompanying illustration. It is at the back of the stove that the innovations lie. In other types of stoves the interior (6) is built in solid, but in the Convective stove it is not, and so there is an open space between the back of the interior and the surrounding brickwork. This space is divided into two portions by a baffle plate (5) near the hearth with a top plate (10). The plates are supported at the back by a half-brick wall (11) and a ledge (4) cast in the surround. The baffle plate fits closely around the back of the stove interior, but in it there is an opening (9) some 9 in. by 2 in. immediately behind the interior. In the top plate is an opening (12) for the products of combustion to pass into the flue, but this opening is surrounded with brickwork with a backing of cement (13). It will thus be seen that the gases cannot get into the open space behind the interior.

The principle of the stove is this: the space below the baffle plate is a cold air chamber (7) into which air flows through



The Convective Fireplace. 1, surround; 2, lower grille; 3, upper grille; 4, ledge; 5, baffle plate; 6, interior; 7, cold air chamber; 8, heating chamber; 9, opening; 10, top plate; 11, brick wall; 12, flue opening; 13, flue surround

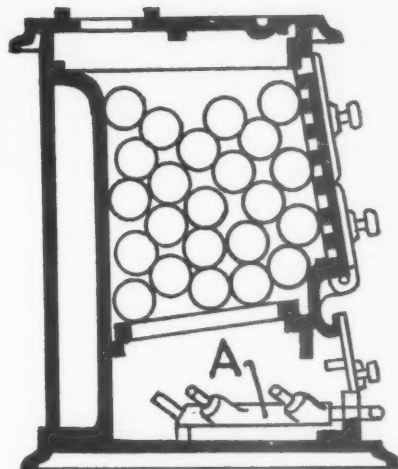
the bottom grilles (2). Here the air is slightly warmed by contact with the back of the interior, and rises through the opening in the baffle plate into the heating chamber (8) where it is warmed by the back of the interior and passes out into the room through the upper grilles (3). In addition, the heated air is in contact with the back of the surround (1), which becomes warm. The purpose of the baffle plate is two-fold, to make the cold air pass round the back of the interior and go through the opening, and secondly, to stop the downward pressure of the expanding air in the heating chamber, as that pressure is greater than the draught of the warm air, and to direct it upwards. For this reason the height of the baffle plate above the hearth is critical, if the system is to work to the best advantage.

The patentee, Mr. L. Mahler, states that the additional heat given out by his fireplace, with a moderate fire burning, is approximately equivalent to the heating capacity of a 4 kilowatt electric stove, and that warm air will flow from the upper vents at a temperature of 160 to 200 degrees F., according to the kind of fuel used. It is probable that the interior will last longer as the quick air currents behind it do not allow it to become hotter than about 210 degrees F. Any kind of fuel may be used, and even if the fire is let out at night, warmth should still be radiating in the morning because, owing to the continuing convective action, the stove does not cool down immediately the fire is extinguished. The stove may be seen in action at the showrooms of Messrs. Stitsons Sanitary Fittings, Ltd., 106-108 Victoria Street, London, S.W.1. From personal inspection, the JOURNAL can testify to the efficiency of the stove.

A gas conversion unit. The convective stove described above is, of course, for new buildings or in replacement of existing stoves, but the Ega conversion unit is intended for existing independent domestic boilers. Delay in getting supplies of fuel for

such boilers, and the comparatively small amount allowed, invite consideration of any other means of heating water, especially in cases where replenishment of the boiler involves a journey downstairs. The Ega unit is designed to use gas instead of solid fuel, and no structural alterations to the boiler are necessary; the unit includes a heating manifold in aluminium, with six brass burners designed to give maximum heat and to eliminate 'popping back'. This manifold is placed inside the boiler in the space usually occupied by the ashpan, the original front to this space being taken away and replaced by an aluminium louver with spring clips and a knob, and an asbestos sheet for use in warm weather. Provision is made for the gas supply pipe to pass through to the burner unit. The body of the boiler is filled with refractory Stourbridge bricks, either round or square; these do not need replenishment or removal. The gas jets are so arranged that five are set almost horizontally to direct flames on to the bottom of the water jacket, while the sixth is directed upwards to heat the bricks in the interior of the boiler. When these bricks get really hot the gas supply can be reduced, a control valve being included in the components sent out with the unit. The makers point out that it is difficult to give gas consumption figures, as obviously these must vary with every household, but from reports received from users it may be stated that an average approximate cost is 8d. per day. The housewife can set this cost against the benefit to her of not having to refuel or clear away ashes, with the advantage of being able to light the unit, or turn it out, as suits her needs. The proprietors are Messrs. Pitt and Bassett, Ltd., 43, Mint Walk, High Street, Croydon, Surrey, who claim that their conversion unit has an efficiency of 80 per cent as against the 55 per cent of solid fuel heating.

Hot water supply to small houses. The British Electrical Development Association have issued a booklet under the title *The design of water heating systems in new houses*, with special reference to electric heating. The Association make the point that in the next few years the great majority of houses built will have a total floor area of 850 to 1,100 sq. ft., comprising one, or two, living-rooms, three, or four, bedrooms, kitchen, bathroom, and so on, and that very little variation in the plans is likely and that these houses will be provided with individual hot-water supply systems, of which the basic design will be repeated thousands of times. The booklet then describes water-heating systems of the all-electric, and the coal-electric system using a two-in-one heater, or an immersion heater. Circuit diagrams indicate the correct and incorrect ways of running the water supply pipes, and also other details which, if attended to, should ensure 'an automatic constant hot-water service of such high efficiency that the consumption of electricity is, for all practical purposes, in direct proportion to the amount of hot water used'. An appendix



Ega Gas Conversion Unit. A, the unit

gives tables of heat losses from bare and insulated tanks, from circulating piping and from 'dead legs'. Copies of the booklet may be obtained from the British Electrical Development Association, 2 Savoy Hill, London, W.C.2.

International furniture competition. The Museum of Modern Art, New York, is sponsoring an international competition for design for low-cost furniture. The Museum and Museum Design Project, Inc. have been concerned with the problem of low-cost furnishings, feeling that Governments and industry all over the world are making every effort to find a solution to the housing problem, but have as yet paid only scant attention to the design and production of good inexpensive furniture. They therefore think that an international competition may draw the attention of designers and technicians from all over the world, and will produce handsome fresh designs leading to the manufacture and wide distribution of a new type of furniture for today's homes. There will be a jury of seven, six in America but the seventh is Mr. Gordon Russell, of our own Council of Industrial Design. There are two kinds of designs which will be eligible; first, for seating units such as upright and lounge chairs, sofas, daybeds, and so on; and the second for storage units for household or personal effects, or both, and in each case the first prize is for \$5,000, second \$2,500 and third \$1,250. The competition closes on 31 October 1948. Intending competitors must notify, in writing, the competition director, Edgar Kaufmann, Jr., Museum of Modern Art, 11 West 53 Street, New York, 19, U.S.A.

British Standards. Revised Standards have now been issued on the subject of Portland cement; they are B.S.12:1947; 146:1947, and 915:1947. Copies may be obtained from the British Standards Institution, 24-28 Victoria Street, London, S.W.1, price 3s. 6d. each.

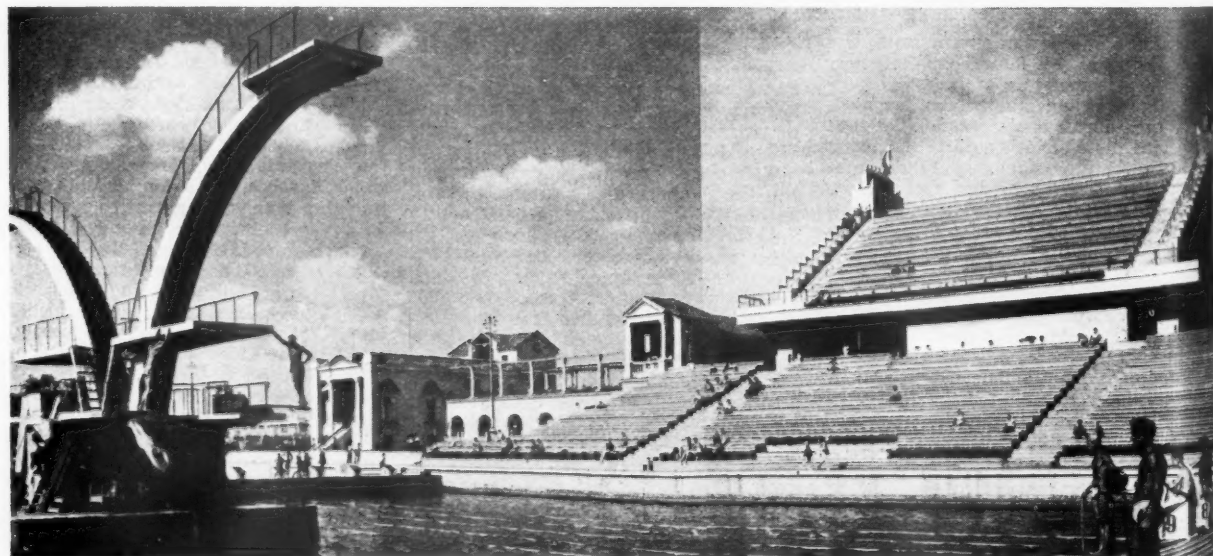


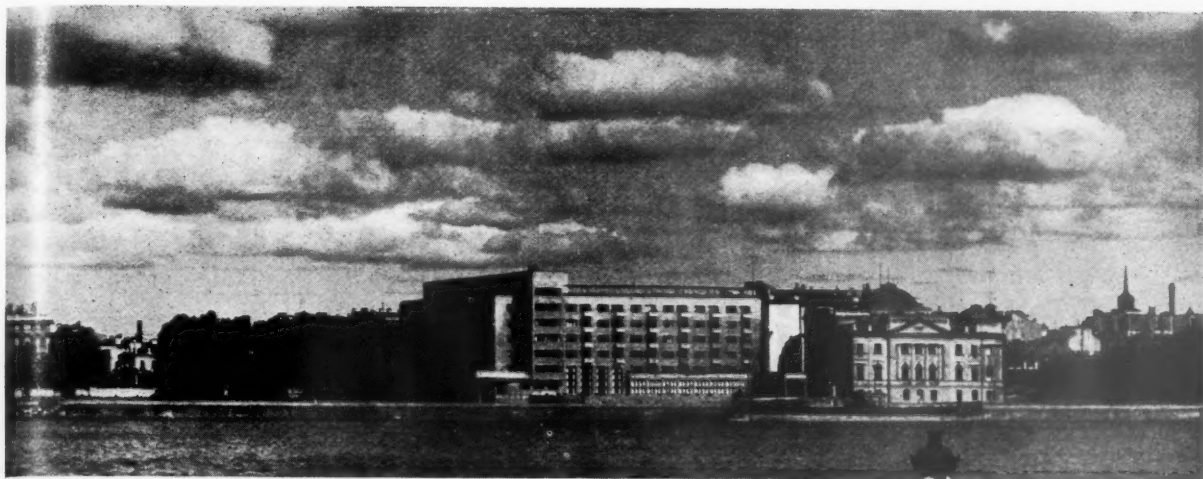
Above: Moscow 1937; the Frunze Military Academy; architects, Lev Rudner and Vladimir Munz. Right: the Georgievskaya Church in the Vydubitsky Monastery in Kiev

The Architecture of the U.S.S.R.—Exhibition at the R.I.B.A.

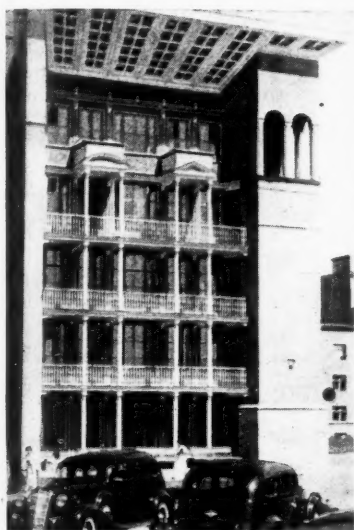
Opened 2 March 1948 by His Excellency the Russian Ambassador, Mons. G. Zaroubin

Right: Novosibirsk 1940; the State Theatre of Opera and Ballet; architect, Alexander Greenberg. Below: Moscow 1938; Dynamo aquatic station at Khimi; architect, Gennady Morchan





Flats for the veterans of the Revolution, Leningrad, 1932. Architect, Simonov



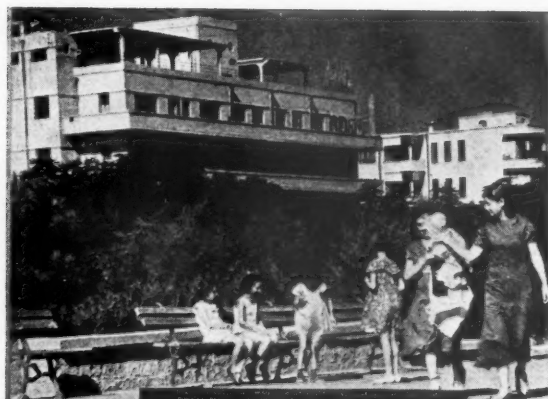
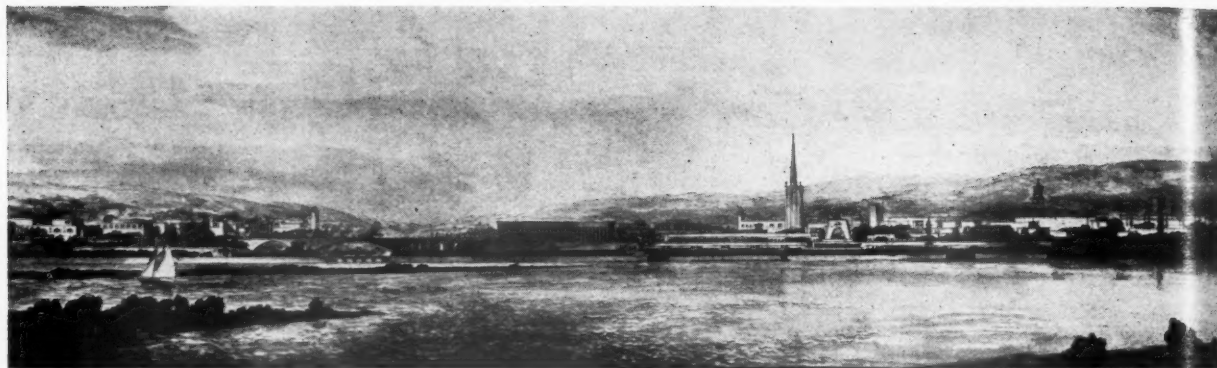
House of the Trade Unions, Moscow



Yerevan, the capital of Soviet Armenia. The mountains are Great and Small Ararat

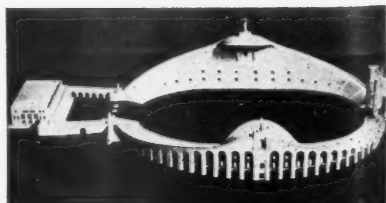


The recent Frunze Embankment on the Moscow river



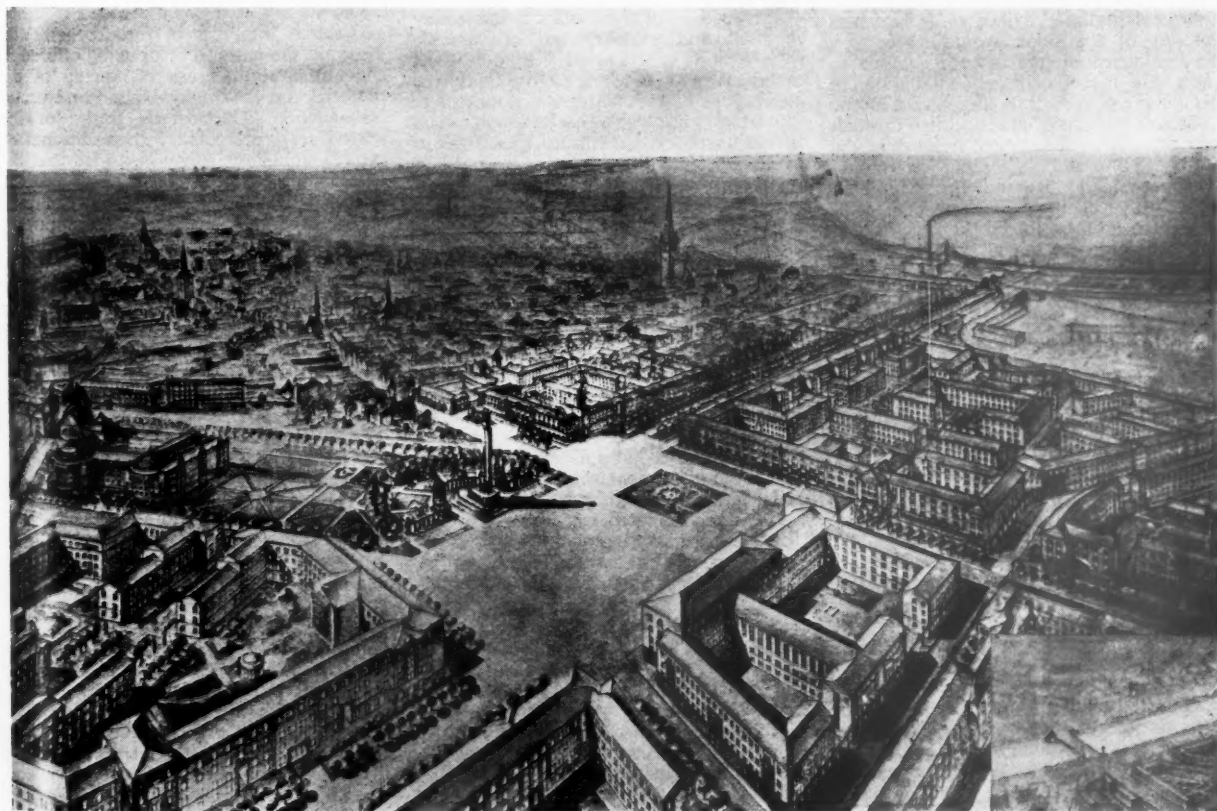
Above: project for the restoration and reconstruction of Stalingrad; panorama of the city from the east side of the Volga; a competition design by the studio of the architect Karo Alabyan. Left: a screen showing housing; the largest view is of the Shaumyan gardens and settlement for oil workers at Baku with, to the right, apartment houses at Moscow for arctic workers, by Eugene Yokheles and an apartment house at Leningrad by Nikolai Lansere; below is the Armenikend industrial settlement at Baku by Sadykh Dadashev and Mikael Useinov (1933)

Bottom left: the Central Theatre of the Soviet Army; the 2,000 seat auditorium; architects, Karo Alabyan and Vasili Simbirtsev. Below: a control tower on lock No. 3 of the Moscow-Volga canal and model of the new stadium at Stalingrad by N. Colley





Above: Main Church of the Gegard Cave Monastery in the outskirts of Erevan (1215). Right: an exhibition screen illustrating a community settlement near Guryev, Kazakh S.S.R. built in 1943 in the arid steppeland. All the buildings are of a local durable gypsum. Architects, A. Arefyev, S. Vasilkovsky and I. Romanovsky. Below: project for the reconstruction of Tallin, capital of the Estonian S.S.R.; the city centre



Book Reviews

Scienza ed Arte del Restauro Architettonico: idee ed esempi, by *Ambrogio Annoni*. 9½ in. 113 pp. + lx pls. Milan: Framar. 1946.

Italy, so rich in architectural monuments, has suffered much at the hands of the misguided restorer. Particularly in the late 19th century, frescoes were clumsily over-painted, mediæval castles 'reconstructed', carcasses shorn of interesting additions and repaired in unsympathetic materials. In recent years on the other hand more intelligent restoration work has been carried out both under private architects and Regional Superintendencies of Monuments. A sound understanding of the problem is more necessary than ever today, when the ravages of war have been added to the destructiveness of man and climate.

The author of this book, who is Professor of Architecture at the Milan Polytechnic, appears to have had considerable experience in this field of work, and here writes on the science and art of architectural restoration. In his analysis he stresses the danger of creating a sham; demonstrates the different solutions for 'dead' remains and 'living' buildings. He discusses general principles and goes on to describe particular examples, mostly his own and not always of great significance, and also town planning implications. He confines himself almost entirely to the removal and replacement of man-built accretions and, except for Ravenna, to examples in the Province of Milan. The interest of the book would have been further increased had it been possible to include in its scope not only notable Italian buildings elsewhere, but also enlarge on the problems that have arisen either through war or neglect: the cooked frescoes of the Campo Santo at Pisa, the blasted Tempio Malatestiano at Rimini, the crumbling Palazzo Rucellai at Florence, the difficulties of level of the Porta Praetoria at Aosta may be mentioned at random. The illustrations at the end of the book show a number of schemes of various dates for the façade of Milan Cathedral.

An English summary of each chapter is included.

R. E. E.

Guides to Houses and Other Properties, by *The National Trust*. 7 in. Mostly with pls. Country Life, for the Trust. c.1930-1947. 2d. to 1s.

A set of 24 of its guides to properties has been given to the Library by the National Trust. Each has a short authoritative description of the building, plates and a catalogue of contents (where necessary), and several have small plans. The set forms a useful contribution to domestic architectural literature.

H.V.M.R.

Practical Building Mechanics, by *Newman Tate*. 8½ in. vii + 227 pp. text illus. Chapman & Hall. 1945. 15s.

The principles of building mechanics treated in simple and general terms, for students to whom an advanced knowledge of mathematics is not essential.

Bibliography of Cement and Concrete. List of books and papers [periodicals] in London libraries, &c. *Cement and Concrete Assn.* repr. typescript. 13 in. 1947.

This comprehensive bibliography records all technical literature dealing with cement and concrete to be found in those London libraries which deal specifically with the subject, including that of the R.I.B.A.

New Ideas for Farm Buildings. *Association for Planning and Regional Reconstruction* 9½ in. by 12 in. vii + 56 pp. text illus. FARMER AND STOCKBREEDER. 1947. £1 10s. A great deal of useful research has recently been carried out in connection with farm buildings, the day to day problems that arise in what might reasonably be termed the rhythm of happenings.

All the activities on a farm fall into some sort of alternating cycle. Winter and summer. Rain and sun. Night and day. Sowing and reaping. Growing and rest. To be ready with the necessary equipment and buildings to deal with these rhythms of activity as they come round is one of the farmers' chief anxieties.

The FARMER AND STOCKBREEDER have recently held an interesting competition with a view to finding out what the physical requirements are on a farm of 100 acres. Something like a hundred plans and suggestions were sent in. These were sorted out and re-drawn, and reduced to a common basis. An ingenious set of symbols was prepared to be read in conjunction with the plans and drawings.

The method of approach was interesting in itself and a great deal of valuable information is collected together. Few architects had anything to do with the suggestions sent in. There was no architect upon the judges panel, an omission which the Ministry of Agriculture took care to avoid in compiling their own excellent book on post-war farm buildings.

The book, *New Ideas for Farm Buildings*, is full of enthusiasm, and though most architects would prefer to design their own buildings there is a lot of detailed information in the latter part of the book which would be useful in stocking one's mental larder. The general layout plans fall down rather badly in places. In the winning design, for instance, the silo is so placed that it would be very difficult to fill and in getting the silage out it would drop on to what is virtually a manure heap. The implement shed is only 480 ft. super, whilst the implement shed on page 45 is 1,800 ft. super—both for a 100 acre farm—rather a wide difference of opinion.

There has been a great change in the method of milk production in the last few years. First, came the abolition of the old-fashioned farmyard and all its filthy shortcomings. Then came the large cowshed with separate stalls for the cows. Now the basic principle is the covered stock-yard and a small separate milking parlour, where a cow can be milked by machinery in about 4½ minutes. One wonders what the cows think of all this, they are the most uncomplaining of clients.

MAURICE CHESTERTON [F]

The Signboards of Old London Shops, by *Sir Ambrose Heal*. 10 in. (4) + 220 pp. text illus. Batsford, 1947. £3 3s.

The use of shop-signs in a far-flung past of popular illiteracy is traceable to the ancient Egyptians and Romans; it developed in mediæval Europe into a decorative feature of city architecture and in London reached its peak in the 16th and 17th centuries. By the 18th century craftsman's pride and advertising zeal had overreached themselves, the exaggerated size and weight of the wrought-iron brackets and pendants constituting a public danger to be averted only by legislation, and it was in 1762 that the removal of projecting signs was made compulsory by proclamation and the gradual numbering of houses in the streets of London followed. The inn-signs alone remained as token of the former colourful picturesqueness of the city thoroughfares.

The changed appearance of the streets, by the admission of more light, the baring of the façades and changed values of their lines and colour, and the unblocking of vistas can well be imagined from a contemplation of the contemporary drawings included in Sir Ambrose Heal's new work, *The Signboards of Old London Shops*.

Sir Ambrose Heal has made invaluable use of his large collection of 18th-century billheads and trade-cards carrying the engraver's version of each tradesman's sign. The book's major portion, which he describes as an abridged directory of the shop-signs of London tradesmen with their addresses and dates, is illustrated by some 400 sepia collotypes of these ornamental symbols, the clues to them being offered in the author's full cross-referencing of his material and his briefly explicit and useful introduction. The leading trades of the period are represented with traditional or typical emblems. It may be added that the greater number reproduced here, by their beauty, unusual imaginative quality of revelation of some aspect of contemporary social history provide a fascinating field for the interest of the artist, historian and antiquarian.

The book in no way challenges Larwood and Hotten's standard work, *History of Signboards*, which it rather supplements. The artistry of Messrs. Batsford's production is in pleasant harmony with the author's material. W. GODFREY ALLEN [F]

Electricity in the Building Industry, by *F. C. Orchard*. 8½ in. xii + 232 pp. + x pls. text illus. Chapman & Hall. 1946. 15s.

This work is intended primarily for the builder and operative; it deals with lighting, power and equipment of modern building, and electrically driven tools.

Annual Report of the Northern Ireland Housing Trust. 9½ in. vi + 17 pp. + xi pls. Belfast. H.M.S.O. 1947. 1s. 8d.

A brief survey of building costs, rents, planning, housing types, tree planting and general conditions, with detailed reports on the Belfast and Londonderry areas, and illustrated with photographs of executed work.

Architecture, by *Martin S. Briggs*. (Home University Library.) [Replacing Lethaby (W. R.)] 6½ in. viii + 228 pp. text illus. Oxford U.P. 1947. 5s.

In withdrawing Lethaby's *Architecture* from the Home University Library, the publishers have succeeded in fulfilling a long-felt public non-want. Although written in 1912 it remains 'unsurpassed and unsurpassable', both as an analysis of the past and as a forecast of the future, and Mr. Briggs' book would have been more warmly welcomed if it had been produced as a supplement to, rather than as a substitute for, its classic predecessor.

This, however, is no fault of Mr. Briggs, and if his task seems to some of us impossible and to most of us unnecessary, it can at least be said that he tackles it with energy, and executes it with his usual competence. From the earliest beginnings of the ancient world to the latest achievements of Manhattan is a span of but 200 pages and throughout we are whisked along at break-neck speed by his experienced hand. The centuries and styles spin by, each with its nicely calculated load of names, figures and facts—it is learning history by sliding down the centuries in one flight—and Mr. Briggs can be congratulated upon compressing so much information so neatly into so limited a space. Upon reaching the inter-war period, however, Mr. Briggs doffs the scholar's gown, picks up the Home Guard pike where it was dropped by Sir Reginald Blomfield, and lays about him with more gusto than judgement. Nobody would wish to deny an author the privileges of his opinions—or prejudices—and modern architecture has made, goodness knows, its share of mistakes. But it is misleading to suggest, if only indirectly, that 'modernism' is, like diabolio, merely a passing craze cooked up by a lot of foreigners.

The book contains a short bibliography and an index, and is illustrated by about 60 of the author's drawings which, though painstakingly detailed, are so rigidly mechanical that they look as if they had been extruded rather than drawn.

HUGH CASSON [A]

Edinburgh, by *George Scott-Moncrieff*. 8½ in. viii + 112 pp. + pls. Batsford. 1947. 15s.

George Scott-Moncrieff is already noted as a playwright and author, and writes here from the point of view of an ardent Roman Catholic, and a believer in Scottish nationalism. His book, of Batsford format and illustrated by fine reproductions of early prints and of photographs by modern Scottish masters, is, perhaps, intended for the perceptive tourist and the enticing of visitors from England, and other sterling or dollar countries.

For the architect and town planner, who may require to know more of Edinburgh in time, space, and human activities, such a description of social and architectural façades is unsatisfying.

But the author is well aware of the problem that the town plan for the City has posed to Sir Patrick Abercrombie, having the deeper perception to feel that the future

plan should be a realization of the place and part Edinburgh must take in Scotland and the national life.

R. E. MOIRA [A]

A Plan for Bath. The report prepared for the Bath and District Joint Planning Committee by Sir Patrick Abercrombie. 12½ in. viii + 120 pp. + 26 pls. (backed) + 1 folding map + 1 folding diag. Pitman. 1945 [1947]. 30s.

The following is a précis by H. Goldsmith [A] of the 'unofficial' review of *A Plan for Bath*, prepared by the Bath Group of the Bristol Society of Architects when the Plan was first published three years ago. Restricting a review of a subject such as this to a few paragraphs means pruning away fruit as well as foliage.

When the plans were exhibited they seemed to show the heavy hand of 'planning for town planning's sake' and to exclude the sensitive touch of the written report. This was disturbing, and there seemed a need for the planners to make a fresh study of their own Report in order that the plan might interpret it to the best advantage of the City. The comeliness of the City is a strong background, but its atmosphere is unsubstantial and man can play havoc with it in a decade; there is an intimate scale about its most grandiose layouts which may tend to be forgotten in the surge of replanning. Some executive energy should be spared to put right what has gone wrong in matters of detail as much as in broad outlines; ground has been lost over street signs, shop fascias obscuring architecture, hoardings, flashy painting of shops; also inter-war housing needs the expert tree planting sadly neglected in the past.

Bath is in danger of becoming a dirty City. The Plan does not mention 'pollution of atmosphere', but on this subject what is required urgently is enforcement of regulations comparable with those which safeguard the water supply. Health and fuel economy call for modern appliances in home and factory; Bath's greatest asset, its stone buildings, is suffering under the present conditions. Industrial enterprises should conform, and the City should not house utility companies serving more than its own immediate needs unless they too can conform.

Bath is a good background for 'gaiety', and under this heading the Plan's views on good colour and careful street planting are welcome. Under the heading 'Precinct' it would be preferable to see this used in Bath to describe an area set aside for quiet and promenade, rather than an area in the contemporary Town Planning sense of a space enclosed in sub-arterial or major local roads with limited access and circulation roads. Further consideration should be given to certain special cases of preservation of buildings which the Plan would sweep away.

Finally, it is hoped that it will be found possible to modify the proposed thorough-road in the Northern section of the City, to amalgamate the two separate railway stations, and to drop the proposal to convert the Royal Crescent for Council offices.

Schweizer Holzhäuser aus den Jahren 1920-1940, by *Paul Artaria*. 3rd ed. 9 in. 126 pp. text illus. Basle: Wepf and Co. Fr. 10.

In this country the case for the timber house must, for some time to come, remain purely academic, but it is to be hoped that it will eventually be taken up again—it was gaining ground before the war—and that the English tradition in domestic architecture will eventually be re-interpreted in timber. Timber, after all, like any other natural material has its own localities and local uses and there has never been any good reason why England should not—with those other countries that lie between the Arctic and the Mediterranean—have its own timber architecture.

If the technique of timber building is properly understood, then an all-wood house can be as warm and dry in winter, as cool in summer and as non-inflammable as any structure of brick or concrete or stone—and cheaper. Within the limits, at any rate of domestic scale, the cantilevered balcony or upper-storey, the lattice girder over the wide span and the fluid or non-supported wall are all simpler and cheaper in timber. The aesthetic possibilities of colour—whether of natural woods or of paint—of pattern and texture derived from vertical, horizontal or diagonal boarding, and of clean, Japanese-like surfaces in the interior—all these spring naturally from the material. Timber, moreover, gives a certain softness and warmth to those modern forms which—in concrete and brick—are still a little cold and ruthless to the more traditionally minded.

For those who accept the case for the timber house Paul Artaria's pleasant little book should be valuable and should be noted for future reference when the day comes to build. The book makes no pretensions to being comprehensive, it does not deal with detailed structural or technical problems, and it does not attempt to go beyond the comparatively modest house. It gives, however, a survey of the timber house in those Alpine countries where it has been best understood, showing clearly how the modern house is part of a continuous development from the chalet and other earlier types, and how the break between traditional and modern is softened by the nature of the material. Few of the photographs seem to be positively new, but it is useful to have them collected together. There are over a hundred of these photographs—small but good—accompanied by several really interesting plans and, a feature less common than it should be, a useful bibliography. R. F. JORDAN [F]

Planning Britain's Land. A Summary of the Town and Country Planning Act, 1947. *Town and Country Planning Association*. 8½ in. 16 pp. Planning Centre. 1947. 1s. A brief survey of this important measure and also the Acts and Reports preceding it: planning in the past, planning process, finance of local authorities, location of industry, development values in land, bibliography.

The Adventure of Building: Being Something about Architecture and Planning for Intelligent Young Citizens &c. by Clough Williams-Ellis. With Drawings by Geoffrey Robson. 9½ in. by 7½ in. 91 pp. incl. pls. text illus. Archl. Press. 1946. 10s. 6d.

Ellis Through the Kaleidoscope—and what an adventure it is! Good Sir Henry Wotton is there to see the party off, but before they have finished shaking hands the mirrors have gone into action already and his customary blessing is reaching them with the conditions slightly transposed. No matter. His parting word is still 'Delight', and they are just settling down to find it in the patterns which buildings make when—click—the little black box has been given a jerk and the patterns have dissolved into a discussion of taste and fashion. 'You may not like the best things best to begin with', says the author; 'you may start off by preferring Santa Maria della Salute to austere things like the new London University building, but if you persevere you will probably change your mind later on.' This places the reviewer squarely among the backward elders, and he hastens to join the party.

It is a breathless and exhilarating chase, and sometimes a perplexing one. A warning against trying to make beauty without regard to the effect of time comes hard on the heels of a warning that the passage of time has nothing to do with beauty (except accidentally); but if we stop to think this out we shall miss our introduction to proportion, without which we cannot get very far. Get very far? Next moment we are back with fashion again—not for the last time—and then again with the effects of time and weather and, surprisingly, the word GARCHEY in startlingly large capitals.

The kaleidoscopic method has its drawbacks, and even the author seems occasionally to lose track of what has happened before: some advice on good manners in building is luckily separated by 62 pages from a description of a sample architect siting a garage hard up against the adjoining owner's ugly lodge so as to hide it from his client's view. True, he has a passing qualm about the rich neighbour's feelings, but never a thought for the lodge-keeper. But in a book of this kind the drawbacks are far outweighed by the advantages, chief of which are that you can look at the subject from a surprising number of angles in a short time (and still have a moment for a catechism, a self-measurement form and a one-act play) and that it can all be done in the author's own inimitable way, with an irrepressible excitement and enthusiasm which really is likely to set fire to the young imagination. *Ellis Through the Kaleidoscope*? It is Clough Williams-Ellis to the life.

Geoffrey Robson's illustrations are full of enthusiasm too—almost too much of it sometimes, which brings on a rush of chiaroscuro to the head; but in the more restrained drawings he expresses with a nice economy not only the facts but also the feeling of a style, a street or a building.

R. Y. GOODDEN [A]

Farnham Town Plan, by Robert Hening and Anthony M. Chitty (Farnham U.D.C.). 9½ in. 37 pp. + 2 folding maps + map in pocket. [Farnham. 1947.]

At Farnham the castle dominates the town from a steep hill. From the castle to the main shopping centre runs Castle Street with its rows of Georgian houses; but Castle Street is used as a car park and 'bus terminus. The western half of the main shopping street is spacious and Georgian, but eastwards it runs into a bottleneck and poor residential development. The approach road to the dreary station crosses what might be a charming river valley, but there are gas-works and unsightly industries. It is a little town of contrasts, still predominantly charming by reason of its setting, the amount of Georgian architecture and the good taste of the inhabitants.

The plan deals first with communications. There are faults in the road system that are rectified in the scheme, and proposals made for new roads.

The railway buildings may yet be redesigned by Mr. Christian Barman, but a landscape architect is badly needed for the layout of the river valley. The surveys of housing and growth of population have been thoroughly done, and schemes suggested for the siting of new estates with their attendant schools and churches.

A new civic centre is proposed, sufficiently large to include all necessary municipal offices and any future official buildings the Government may decide to impose. Proposals are also made for the control of industrial and commercial development.

Suggestions are sensibly made for more opportunities for rest in the town centre. The engineers have been responsible for much avoidable ugliness in the neighbourhood, and the suggestion that local architects be consulted will, it is hoped, be followed. To quote the authors of the plan, they 'stress that though the charms of Farnham can be appreciated by anyone and everyone, these qualities cannot be achieved in new works save by those whose training . . . is in the pursuit of beauty rather than function alone.' Altogether, this is a very sensible and practical plan. May it not be too long before it comes into being.

H. F. HOAR [F]

Town Trees. Council for the Preservation of Rural England. Sheffield and Peak District Branch. 9 in. 14 pp. text illus. [Sheffield. 1947.] 9d.

This pamphlet outlines the basic principles which should be followed in the planting of trees in streets and public places, and in their treatment to avoid unsightly lopping in later years. The argument is reinforced by some telling photographs.

Carpentry and Joinery for Junior Technical Schools of Building, by John Lee. 8½ in. 176 pp. text illus. E.U.P. 1947. 6s. 6d.

An elementary book on carpentry and joinery, to meet the requirements of students in junior technical schools.

Dorset, by Aubrey de Selincourt. Drawings by Barbara Jones. (Vision of England series.) 9 in. × 7½ in. 48 pp. + pls. + folding map. Paul Elek. 1947. 9s. 6d.

This work, in the same series as *The Black Country* (reviewed August, p. 524), has the same chatty text, free drawings, and good photographs; all parts of the country get a mention, though Dorchester gets little attention, and a map of 1610 is supplemented by a ¼ in. ordnance. Landscape and architecture are fairly balanced. There is a brief index.

Sussex, by Reginald Turnor. (Vision of England Series.) Drawings by Michael Rothenstein. 9 in. × 7 in. 48 pp. + pls. text illus. Elek. [1947.] 9s. 6d.

This work in the series is slightly bulkier and has a rather higher architectural content than the others; old towns like Rye and Winchelsea, Lewes, Midhurst and Chichester, and castles such as Bodiam and Pevensey, have their share, though Brighton also receives attention. Otherwise it has all the usual features, as in the previous volumes noted. The photographs are well selected and cover a wide field. Michael Rothenstein contributes drawings of distinction, some of them reproduced in colour.

H. V. M.R.

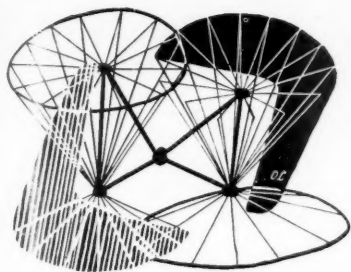
Style in Sculpture. Edited by Leigh Ashton. 7½ in. 64 pp. + 38 pls. O.U.P. 1947. 4s. 6d.

This book, based on an Exhibition held at the Victoria and Albert Museum in 1946, illustrates the development of style in sculpture over the past thousand years. The photographs of selected objects in the Museum are well chosen to show the character of style which distinguishes Romanesque from Gothic, Gothic from Renaissance, the so-called 'Mannerist' style from Baroque, and Rococo from Neo-classicism and sculpture of the present day.

The Bombed Buildings of Britain—1940-45. J. M. Richards, ed. With notes by John Summerson. 2nd ed. Architectural Press. £1 5s. 202 pp., text illus.

This is an enlarged edition of a work first published in 1942, now covering 'the whole period of air bombardment'; it includes London, all the important cities of England in alphabetical order, with shorter notes of others of England and of Wales, and Belfast (Scotland being outside the affected area).

The book consists of a remarkable collection of photographs of bombed buildings, mostly taken immediately after the raids. These combine to form a document of considerable historic interest. To the photographs are added in many cases an engraving showing the building in its original state, and in every case a note about the history and architectural character of the building written by Mr. John Summerson. These notes contain a quantity of accurate historical information about English architecture of all periods, of a kind not easily accessible elsewhere. There is an index of places and buildings and of architects.



Schools and Students

Plan: The Journal of the Architectural Students' Association has appeared in a new form. Every year it is produced by the students of a different school of architecture; this year it is the turn of the A.A. School, and the student editors have given *PLAN* a new shape, cover and make up. The first number is cheerful, well-illustrated, interesting and has excellent typography in its 34-page editorial to what are added a creditable number of pages of advertisements. Specially good are the line drawings which, with very few exceptions, are exactly right in scale, and we speak from experience when we say it is not so easy to achieve this as readers of periodicals often think; too great a reduction in size from the original and the lines become thin; too little reduction, and the illustration looks 'windy'.

Inside the cover is a satirical poem 'The Deserted Satellite' (After Oliver Goldsmith), by an anonymous contributor who takes a dim view of the future of the Stevenage new town project. Michael Ventris in *Function and Arabesque* covers a wide range of aesthetic and technological theory in which he places functionalism (now smellily defunct) on a funeral pyre, but adds 'To be merely folksy, like Vaughan Williams or Morris, is only half the battle', but goes on later to say, 'The enemy has always been the classical.' He pleads for a native architecture to 'preserve and enrich the natural landscape and to promote an idiom which at once respects regional tradition and yet gives the most fun in terms of modern life.' That means, presumably, that the student should study landscape, traditional architecture, modern techniques and, above all, human life, and then go ahead as his spirit moves him.

A. Cox [A] and L. De Syllas [A] report the C.I.A.M. Congress 1947 on a bluey-green paper and the Pimlico Housing Scheme by Powell and Moya [A.A.] is well illustrated but has a rather severely critical commentary which oddly enough is signed with the initials 'P and M'. But an architect should always be his own most severe critic.

Work from the London Schools is illustrated by three schemes from the Regent Street Polytechnic, the Bartlett School and the A.A., after which Kenneth Campbell [A] argues the pros and cons (mostly the pros) of trades unionism for architects in *The Technician, the Union and Society*. Book Reviews and Arch. S.A. News end a good half-crown's worth. Intending sub-

scribers should write to *PLAN*, the Journal of the Architectural Students' Association, 34-36 Bedford Square, W.C.1.

Lectures at the Bartlett: The Bartlett School of Architecture, University College, London, is running a series of special lectures; a cordial invitation to attend is extended to all who are interested. Our date of publication is too late for the first two lectures of the series, but London readers may like to attend the three remaining. They are: 29 April, *Daylighting*, by Mr. W. Allen [A] of the Building Research Station; 20 May, *The Meaning of Fashion*, by Mr. James Laver; 10 June, *Some Recent Developments in Auditorium Design*, by Mr. Hope Bagenal [F]. The date of a further lecture by Mr. S. Lindsay on *Metalwork* will be announced later. The lectures are held at 5 p.m.

King's College Department of Architecture, Durham: Preparations are going ahead for the first Congress of Northern Schools of Architecture which is to be held at Newcastle in July. This will be the main activity of King's College Architectural Society this session.

The Michaelmas term opened with an exhibition of sketches and paintings. A criticism was given by Mr. Christopher Cornford and prizes were awarded by the Society. In October a visit was arranged to see the liners Strathaird and City of Paris under refit at Hebburn. At the end of the month there was the annual university rag and architectural students were as conspicuous as usual.

The December meeting heard a lecture en-

titled *Architecture as an Art*, by Mr. Bruce Allsopp. The term ended with a Pot Pie Supper, where the students entertained the staff. A highlight of the subsequent concert was a sketch of the ceremonial opening of a building designed by a fifth year student in which the Professor of Architecture was a surprised participant. The entertainment was ended with a pantomime given by the staff, in which a late member who had reason to be proud of his hair temporarily lost it.

Arch. S.A. Notes: In February the Arch. S.A. Council, meeting in the congenial atmosphere of the Saracen's Head, Leicester, voted for amalgamation with the R.I.B.A. and we understand that arrangements are now proceeding and therefore subjudice.

The Arch. S.A. Council also dealt with the questions of the next Congress in Manchester and an International Congress in London. The most controversial resolution was one urged by 250 A.A. students which called for no building cuts in London's new towns. It was tossed like a hot rivet to the Annual General Meeting.

Clerihew from Leicester
Palmerston, Prime Minister
Found Gilbert Scott's designs too
sinister
Feeling cantankerous
Scott used them on St. Pancras.

This Month's Remark: By the architect for one of the new towns. 'If there were five Ministries less, we could build this town.'

Review of Films—1

The country of origin and date of release are given first. The film is in monochrome unless otherwise stated. The sizes (35 mm. and 16 mm.) are given. Sound films are marked 'sd.', and silent 'st.' The running time is given in minutes. (F) indicates free distribution.

(H) indicates that a hiring fee is payable.

The City
U.S.A., 1939. (F)

Summary. Based on the theme of Lewis Mumford's 'The Culture of Cities', the film sets out to show the paramount need to plan our cities and towns of the future in order to avoid the problems created by the lack of planning in the 19th and 20th centuries. The film opens with shots of country life prior to the 19th century when villages and towns had not been allowed to grow too big. Contrasted with this is city life with its congested traffic, noise and smoke—children have nowhere to play and the houses of the poor are often little better than hovels. The film shows how this can be avoided if towns are planned in advance, and a limit is placed on their growth. Shots follow of Maryland, U.S.A., where ideal conditions are provided for both adults and children; spaces admit sunlight and air; shops, schools and places of amusement are near at hand, and industrial development is correctly zoned.

Appraisal. A stimulating well-conceived film which holds the attention. The contrast of town and country life are excellently depicted, and the human interest in the story helps the continuity. The film is allowed to tell its own story, and the commentary is thereby reduced to a minimum.

35 sd. and 16 sd. 35 minutes. Can be hired from Central Film Library, Imperial Institute, S.W.7 (Reference No. U.S. 300).

The House That Jack Built
Britain, 1946. (F)

Summary. This film was made for the Ministry

of Works Building Apprenticeship and Training Council. It tells the story of a building scheme that has been adopted in many places, including Guildford, where the film was made. Boys who have just left school are apprenticed to a builder working on council houses. The boys work slowly but gain experience of the different trades and find out which they are most suited for. They are apprenticed to a firm for five years and attend a technical training school one day a week while they learn the practical side. **Appraisal.** A well-conceived film and one in which the subject is treated in an interesting and informative way. The photography is good but at times the commentary seems a little divorced from the screen picture. The musical background seems a little out of place. On the whole a good film which is likely to achieve its object by attracting boys to the building industry. 35 sd. and 16 sd. 20 minutes. Can be hired from Central Film Library, Imperial Institute, S.W.7 (Reference No. U.K. 770).

Manufacture of Sheet Glass
Britain, 1946. (F)

Summary. This film features the processes used in the manufacture of sheet glass. It shows how in the 15th century glass-makers produced a transparent glass in the form of a disc 48 in. to 54 in. diameter, and later developments leading to the modern process whereby sheet glass is drawn in the form of a continuous ribbon approximately 80 in. wide at the rate of approximately five miles per week.

Appraisal. A fine film, well thought out, in which the various processes are clearly shown in sufficient detail to interest the student or practising architect. Occasionally there is a little confusion between the spoken and written commentary and the background music is sometimes rather distracting. A first-class film, however, which should be of great interest to architectural and building students as well as others and which it is intended should form part of a lecture given by an expert on the subject.

16 sd. 20 minutes. Can be hired from Pilkington Bros., Ltd., 63 Piccadilly, W.1.

Notes and Notices

NOTICES

The Ninth General Meeting, Tuesday 6 April 1948

The Ninth General Meeting of the Session 1947-48 will be held on Tuesday 6 April 1948 at 6 p.m. for the following purposes:

To read the minutes of the Eighth General Meeting held on 9 March 1948.

To present the Royal Gold Medal 1948 to Mons. Auguste Perret (Hon. Corresponding Member R.I.B.A., France).

(Light refreshments will be provided before the meeting.)

The One Hundred and Tenth Annual General Meeting, Monday 3 May 1948

The One Hundred and Tenth Annual General Meeting will be held on Monday 3 May 1948 at 6 p.m. for the following purposes:

To read the minutes of the Ninth General Meeting held on 6 April 1948; formally to admit new members attending for the first time since their election.

To receive the Annual Report of the Council and Committees for the official year 1947-48.

(Copies of the Annual Report will be sent to members in April.)

It will facilitate answers to questions if members will give the Secretary prior notice of any questions which they may wish to ask. Notices should be in the Secretary's hands not later than 24 April. This will not preclude the right of members to ask questions on the Annual Report without having given prior notice.

To nominate candidates (two members) for the office of Hon. Auditor for the ensuing year.

To receive the list of attendances at the Council during the Session.

(Light refreshments will be provided before the meeting.)

Session 1947-48. Minutes VIII

At the Sixth General Meeting of the Session 1947-48 held on Tuesday 10 February 1948 at 6 p.m.

Mr. Michael Waterhouse, M.C., Vice-President, in the Chair.

The meeting was attended by about 120 members and guests.

The Minutes of the Fifth General Meeting held on Tuesday 27 January 1948 were taken as read, confirmed and signed as correct.

Professor Lionel B. Budden, M.A. (Lvpl.) [F], having delivered his address to students, a vote of thanks was passed to him by acclamation, on the motion of Dr. D. R. Pye, C.B., M.A., Sc.D., F.R.S., Provost of University College, London, seconded by Mr. Martin S. Briggs [F], Vice-Chairman of the Board of Architectural Education, and was briefly responded to by Professor Budden.

The Presentation of Prizes was then made by the Chairman in accordance with the Council's Award.

The proceedings closed at 7.10 p.m.

Session 1947-48. Minutes IX

At the Seventh General Meeting of the Session 1947-48 held on Tuesday 24 February 1948 at 6 p.m.

Mr. C. G. Stillman, Vice-President, in the Chair.

The meeting was attended by about 240 members and guests.

The Minutes of the Sixth General Meeting held on Tuesday 10 February 1948 were taken as read, confirmed and signed as correct.

The following members attending for the first time since their election were formally admitted by the Chairman:

AS FELLOWS

H. Hubbard Ford, R. W. Stevenson.

AS ASSOCIATES

E. G. Y. Adams, R. L. Balkwill, J. H. Betts, R. J. Double, F. W. Drake, G. W. Dunton, R. E. Firbank, David Goldhill, R. M. Graham, J. W. P. Grimes, J. A. Lawrence, H. R. Lewis, F. L. Mason, Miss M. C. Miller, Frank Moate, Lloyd Orton, B. M. Peake, J. M. P. Price, A. E. Prower, J. T. Redpath, J. C. Stillman, D. V. C. Walker, E. H. Weaver, Miss J. V. Wilson.

AS LICENTIATES

W. J. Biggin-Pound, R. C. Palmer, Harold Pearce, F. L. Vicary.

Mr. M. Hartland Thomas, M.A., [F], Chairman of the R.I.B.A. Architectural Science Board, having read a paper on 'The Influence of Technical Research on Design and Methods of Building', a discussion ensued and on the motion of Sir Harold Emmerson, K.C.B., Secretary, The Ministry of Works, seconded by Mr. Howard Robertson, M.C., S.A.D.G., [F], President of the Architectural Association, a vote of thanks was passed to Mr. Hartland Thomas by acclamation and was briefly responded to.

The proceedings closed at 8 p.m.

R.I.B.A. Reception 30 April 1948

There will be a Reception at the Institute on Friday 30 April 1948 from 8.15 p.m. to midnight. The President and Lady Keay will receive the guests in the Henry Florence Hall from 8.15 to 9 p.m. and there will be dancing from 9 p.m. until midnight.

Tickets are 15s. each. In the first place members will be restricted to one guest each but they may give the names of further guests for whom tickets will be supplied should it prove that accommodation will be available. Application for tickets (with remittance) should be made as early as possible.

Full evening dress is preferred but in view of present-day conditions, members will be welcome in dinner jackets or uniforms or lounge suits.

British Architects' Conference, Liverpool 27-30 May 1948.

All members and students of the R.I.B.A. and the Allied and Associated Societies are cordially invited to attend the Conference. Full particulars of the programme are enclosed with this issue of the JOURNAL.

Members of the R.I.B.A. and the Allied Societies who are officials of local authorities will be welcomed as delegates to the Conference.

It will greatly facilitate the arrangements if members who propose attending will fill up the fly-sheet attached to the programme and return it as early as possible to the Secretary, R.I.B.A., and in any case not later than 12 May.

It is expected that there will be a large attendance of members from all parts of the country, and they are advised to arrange their hotel accommodation at the earliest possible moment, to avoid the risk of disappointment.

The Executive Committee of the Conference have furnished a list of hotels in and around Liverpool which is included in the Conference programme.

Cessation of Membership

Under the provisions of Bye-law 21 the following have ceased to be members of the R.I.B.A.: *As Associates*, Maung Ba Chit; *On Than*, *As Retired Associate*, Habib Basta. *As Licentiate*, Lawrence Ashton Box. *As Retired Licentiate*, Frank Edward Milne.

Architects' and Surveyors' Fees in Claims under Fire Insurance Policies

The Practice Committee of the R.I.B.A., in conjunction with representatives of the Royal Institution of Chartered Surveyors, have had under consideration the question of professional fees in connection with reinstatements after fire.

No difficulty arises in connection with a fire in a building in course of erection because the building contract provides for such occurrences. It is in connection with a fire in an existing building that difficulties are likely to arise, owing to the policy frequently being indefinite in its terms. The ordinary insurer of a building in many cases does not realize that, although the services of an architect and a quantity surveyor and sometimes a clerk of works are normally essential to a rebuilding owner, unless he is specifically covered against these fees they do not form part of the insurance company's liability for payment in the case of partial or complete destruction of the building; and in many cases the insurer is not aware of this until it is too late.

In the interests of both themselves and their clients members are advised to take every possible step to ensure that fees for professional services are specifically covered in fire insurance policies.

Architectural Science Board

British Standard Specifications.

Members of the R.I.B.A. Standard Specifications Committee who wish to bring any particular B.S.S. matter to the attention of the Co-ordinating Committee, are asked to communicate with the Secretary to the Architectural Science Board.

BOARD OF ARCHITECTURAL EDUCATION

R.I.B.A. Intermediate, Final and Special Final Examinations, Salisbury, Southern Rhodesia—November and December 1947

The R.I.B.A. Intermediate, Final and Special Final Examinations were held in Salisbury, Southern Rhodesia, in November and December 1947. The successful candidates are as follows:

Intermediate Examination: Mr. Arthur S. Fairman, Mr. B. W. F. Fothergill.

Final Examination: Mr. R. J. D'Arcy Cathcart (subject to approval of Thesis).

Special Final Examination: Mr. Werner Feit, Mr. Edward B. Rowland.

ALLIED SOCIETIES

Changes of Officers and Addresses

The North Staffordshire Architectural Association. President, Mr. C. Edwards [F], Stafford Chambers, 3 Brook Street, Stoke-on-Trent. Secretary.

Essex, Cambridgeshire and Hertfordshire Society of Architects, West Essex Chapter. Chairman, Mr. R. O. Foster [A], The Mount, Albion Hill, Loughton, Essex.

The Leicester and Leicestershire Society of Architects

At a luncheon held at the Bell Hotel, Leicester, on 28 January 1948, Sir Lancelot Keay, K.B.E., presented the Bronze Medal and a Diploma to Mr. W. M. Pike [F] and his partner, Mr. W. J. Prince [F] both of the firm of Symington, Prince and Pike, for their design of the Southfields Public Library, Leicester, which was opened in 1939. 'This design' said Sir Lancelot, 'has caused considerable interest through the world, even, I understand, as far afield as Russia'. Sir Lancelot also presented a duplicate Medal and Plaque to the Deputy Lord Mayor, Ald. W. H. Smith, on behalf of the Libraries Committee.

Mr. Pike, in replying to Sir Lancelot, mentioned a similar award to his firm in 1933 for the design of 'Kay Bee House' in Charles Street, Leicester. Ald. Smith, in his reply, said the building showed a happy and harmonious result of the co-operation of all concerned.

In his address after the presentation Sir Lancelot drew a clever simile between the Martello Towers on our coasts which, being similar in shape, fulfilled a similar purpose to the library. The former were intended to repel invaders during the Napoleonic wars. Today public libraries provided the community with a means of obtaining knowledge which should repel the invasion of thoughts and beliefs that are quite alien to the way of life in this country. This building showed how we could achieve satisfactory modern architecture without foreign influence. He also observed that although the general world situation today looked black he urged that we should not be pessimistic and above all, he said, 'don't be despondent and don't panic. It is not for us as architects to express opinions as to the necessity or otherwise of the cut in capital expenditure. Hardship may result from the present economic policy. We are no privileged class, we must bear our share of the burden with the rest of the nation'.

He hoped that the work of the architect would be more generally recognized by industrial undertakings, and he was perturbed by a recent attempt in which engineers were given precedence over architects. He quoted the L.P.T.B. as being an example of a body which had made good use of its architects and recognized the importance of employing them on work which was essentially theirs.

He then said a few words to the students present who he said should not forget the proportions of older buildings and learn to be able to use those proportions in present-day design. One of the best examples of proportion was the perfect human figure, and so they had constant reminders of good and bad proportions. He asked that siting of buildings be carefully studied, buildings should be what they seemed, and that they should perform efficiently the function for which they were designed.

The President of the Leicester and Leicestershire Society (Mr. P. H. Grundy [L]) was in the chair and formally thanked the President of the Royal Institute for his visit and address.

The Royal Institute of the Architects of Ireland Annual Dinner 1948

The Annual Dinner of the Royal Institute of the Architects of Ireland was held in the Royal Hibernian Hotel, Dublin, on Thursday 5 February 1948. There was an attendance of about 120 members and guests.

Prominent amongst the guests were the President, Royal College of Physicians and Mrs. Solomons, the President, Insurance Institute of Ireland, and Mrs. Brennan, Mr. C. D. Spragg, Secretary, Royal Institute of British Architects, the President, Royal College of Surgeons and

Mrs. Gill, the President, Incorporated Law Society of Ireland and Mrs. O'hUadhaigh, and the City Manager and Mrs. Hernon.

The toast of 'Ireland' was proposed by the President, Mr. Frank McArdle, the Toast of 'Our Guests' was proposed by Mr. Stephen S. Kelly, past-President R.I.A.I. and responded to by Dr. Bethel Solomons, President of the Royal College of Physicians.

Mr. Frank McArdle referred to the regretted absence of Sir Lancelot Keay, President of the R.I.B.A., through illness, and read a letter from Sir Lancelot conveying his regrets and greetings. In Sir Lancelot's absence the Toast of 'The Royal Institute of the Architects of Ireland' was proposed by Mr. Joseph Brennan, President of the Insurance Institute of Ireland, and responded to by Mr. McArdle.

Essex, Cambs and Herts Society of Architects, West Essex Chapter

The Twenty-second Annual General Meeting and Dinner was held at Jerrards' Restaurant, Ilford, on 10 February 1948 at 6.45 p.m., and the following officers were elected for 1948-49: *Chairman*, Mr. R. O. Foster; *Vice-Chairman*, Mr. D. A. Thomerson; *Hon. Secretary*, Mr. S. J. Clapp; *Hon. Treasurer*, Mr. A. W. Pipe.

The retiring Chairman (Mr. R. A. Cornell) expressed his pleasure at the increasing interest, membership and attendance, and expressed his warmest thanks for the support he had received from the Executive and all members.

The following is the Executive's report: 'Efforts made during 1946-47, and continuing during the present year, have borne fruit, and it is justifying to record that the Membership is now nearly 170; that attendances at regular meetings have averaged about 40, and it has been necessary to refuse applications for seats for two of the social outings.

'The change of venue to Jerrards' Restaurant has proved very popular.

'The Treasurer's report will disclose that the policy of subsidizing the cost of meetings from the main funds has not unduly eaten into the balance, the increased attendances and membership obtained have to a certain extent offset this expenditure.

'The abolition of the basic petrol ration was treated as a difficulty to be overcome, and meetings have continued.

'Interesting talks were given by a representative from Messrs. Pilkington and by Mr. Cutbush of the B.S.I., and there have been the usual Discussion meetings.

'A river trip to Greenwich was exceedingly well supported, and was made the more enjoyable owing to perfect weather.

'A visit to the Building Exhibition, arranged on behalf of the Society, proved interesting, though catering difficulties for once proved a stumbling block.

'The year closed with a visit to the Empire Pool and Sports Arena, Wembley, and members were shown round the buildings and plant, and after dinner stayed to see one of the closest ice hockey matches of the season. The Committee earnestly ask all members to continue to encourage new membership in 1948 by inviting prospective members to attend meetings as guests.

'The Committee record with deep regret the passing of Mr. A. C. Russell, Registrar of the Society, and for many years an enthusiastic chapter member, and also the death of Mr W. E. Trent.'

The retiring Hon. Secretary, Mr. D. A. Thomerson, appeals most urgently to all members to advise the new Secretary, Mr. S. J. Clapp at 8 Queen Street, E.C.4 (City 6601), of any changes of address or intention to leave the district.

Owing to the dislocation due to the war the work of re-editing the Register has been unduly difficult, and any members not receiving the Chapter circulars are requested to inform the Hon. Secretary immediately.

A full programme of meetings and visits is being arranged for the coming year. New members will be most cordially welcomed.

Manchester Society of Architects' Reception and Presentation of Prizes

A reception followed by a dance and buffet supper was held on 13 February 1948, at the Reform Club, Manchester, in lieu of the Society's annual dinner. 154 members and 14 guests were present and enjoyed the evening's dancing.

During the supper recess Mr. P. G. Fairhurst [F], President of the Society, read a letter of apology from Sir Lancelot Keay, P.R.I.B.A., regretting his inability, through illness, to attend the reception. He extended to the President the Society's best wishes for a speedy recovery.

Mr. Fairhurst then welcomed Mr. Raymond Nicholas, City Surveyor and author of the Manchester Plan, and Mr. W. L. Jones, ex-President of the Manchester Chamber of Commerce, as guests of honour. Mr. Jones, replying to the President's welcome, said how pleased he was to be the guest of the architects with whom he had been so closely associated for over 40 years, and expressed his sincere desire to see the proposals, set out by Mr. Nicholas in his City Plan, carried out with the minimum delay.

On 17 February 1948 the Society's president presented the prizes to the successful competitors in the recent competitions, open to student members of the Manchester Society of Architects and its affiliated societies.

The results of the competitions are as follows: *Senior Measured Drawings Prizes*—First, B. G. Cobb; Second, A. T. Pimblott. *Junior Measured Drawings Prize*—First, D. A. Cobb. *Commended*, R. W. Brunskill. *Sketches Prizes*—*Beaumont Prize*, Miss E. Thompson; *Education Committee Prize*, B. J. Stanton. *Essay Prize*—Highly Commended, R. W. Brunskill, H. S. Barnes. *Senior Design Prizes*—First, G. Dawson; Second, Miss B. M. Bailey. *Junior Design Prize*—First, D. A. Cobb; Second, B. H. Lingard. *Oldham Society's Prize*—A. C. S. Hickes.

There were in all 59 competitors, and the criticisms which followed commended entrants on the high standard of the work submitted, especially for the Measured Drawing Prizes, and the Oldham Society's Prize for working drawings of a two-storey brick Georgian-type terrace façade.

South Wales Institute of Architects

A very successful function attended by nearly 150 members and guests was held at the Park Hotel, Cardiff, on Friday 27 February. Owing to the Ministry of Food restrictions it was not possible to hold the customary dinner, but the Council of the South Wales Institute, represented by the President, Major Gordon H. Griffiths, the chairmen of the Branches and the Hon. Secretary with their ladies entertained the Lord Mayor and Lady Mayoress (Alderman and Mrs. R. G. Robinson), Mr. Cyril F. Martin, Vice-President, R.I.B.A., and Mr. C. D. Spragg, Secretary, R.I.B.A., to dinner.

Members and guests were then formally received by Major and Mrs. Griffiths and short speeches were made by the Lord Mayor and Mr. Martin, who also read a message from Sir Lancelot Keay (President, R.I.B.A.), who, unfortunately, was prevented from attending by illness.

The dinner was followed by a buffet dance.

COMPETITIONS

New Memorial Building at Great Russell Street, W.C.1, for the T.U.C.

The General Council of the Trades Union Congress invite architects of British nationality, or architects resident in this country, to submit designs in competition for the T.U.C. Memorial Building, which they propose to erect on a site in Great Russell Street, London. Assessor: Sir Percy Thomas, O.B.E., Hon. LL.D., P.P.R.I.B.A.

Premiums: £2,000, £1,000 and £500.

Last day for submitting designs: 30 June 1948.

Conditions may be obtained on application to the General Secretary, Trades Union Congress, Smith Square, London, S.W.1.

Deposit: £2 2s.

COMPETITION RESULT

Proposed Memorial at Liverpool to the Missing Naval Auxiliary Personnel of the Second World War

1. Mr. Stanley H. Smith [A] and Mr. Charles Blythin [F].

2. Mr. C. D. Ostick, A.M.T.P.I. [A].

3. Mr. H. St. John Harrison [F].

Commended: Mr. Wm. Logan [A], Mr. R. E. E. Beswick, M.B.E. [A], Mr. F. H. Crossley, Dip. Arch.(L'pool) [A], Mr. Ainslie Threadgold [F].

GENERAL NOTES

Sixth Pan-American Congress of Architects

The Sixth Pan-American Congress of Architects was held at Lima, Peru, in October 1947.

A letter of greetings and good wishes was sent to the Congress by the President on behalf of the Council and members of the Institute, and the following reply from the President and Secretary of the Congress, has been received:—

8 January 1948.

Dear Mr. President,

In the name of the Sixth Pan-American Congress of Architects we have the honour

to thank you most especially for the cordial greetings which you were kind enough to send us on behalf of yourself and the Council of the Royal Institute of British Architects on the occasion of the holding of the Sixth Pan-American Congress of Architects at which we had the honour to preside.

The greetings were communicated at a general meeting of the delegates to the Congress and will be included amongst the greetings which we had the honour to receive, in the published proceedings of the Congress.

We propose, and it will give us great pleasure, as soon as it is published, to send you the complete book of the proceedings of our Congress.

We take this opportunity of repeating our thanks for your friendly gesture, and we beg you to overlook our involuntary delay in acknowledging it. We extend to you our repeated assurances of our highest esteem and regard.

RAFAEL MARQUINA B.

Presidente.

LUIS ORTIZ DE ZEVALLOS,

Secretario.

Sir Herbert Baker Scholarships Foundation

The Royal Academy, in considering candidates for election to the Herbert Baker Scholarships for Architecture, Sculpture, Painting and Poetic Literature, desires it to be known that the object of the Foundation is to enable advanced students and young practitioners to travel abroad for the study of the interdependence of the Arts.

In making their selection the assessors will give consideration to persons of mature age and judgement; these, having had some experience of actual work in the world, will have learnt from their difficulties and dissatisfactions what to look for in further study. It is suggested that study should be given to the masterpieces of Architecture, Sculpture and Painting respectively, and to the great traditions of the Arts.

As far as may be possible and desirable, the headquarters of the scholar studying in Italy

should be the British School at Rome (the direction of which, it was hoped by Sir Herbert Baker, would tend more to the study of the interdependence of the Great Arts). Without making a long stay in one place, the scholar should visit some of those great centres of Europe where the Arts have been brought to the highest development, and where the great practitioners have flourished: Athens, Rome, Florence, Venice, Paris, Chartres, Beauvais, Madrid, Toledo, etc. Notable modern examples of collaboration between architects, painters and sculptors should also be visited. A very long visit to one place is not advocated.

Within a period of six months of the conclusion of the course of study, the scholar will be required to deposit at the Royal Academy the work done as testimonials of study, including a written and illustrated thesis on some special subject on the interdependence of the Arts. The aim of the thesis should be a genuine contribution to the subject, for the use of succeeding scholars and of students of the Royal Academy. The scholar will be expected to proceed on a course of study within a period of six months from the date of election, and to submit for the approval of the assessors definite proposals for the course.

The Scholarship to be awarded in 1948 will be for an architect, and the amount available from the Fund will be 200 guineas, to be paid to the Scholar as follows: £105 at the commencement of the scholar's tour for study; £105 on deposit and acceptance by the Royal Academy of the testimonies of study.

Candidates who desire to make application for election are required to send to the Secretary, Royal Academy of Arts, Piccadilly, London, W.1, by 6 May 1948, the following information: (1) A letter of formal application, stating age, and giving particulars of previous study and experience. (2) A letter of recommendation from a responsible person who has personal knowledge of the candidate and his career.

Obituaries

Sir Charles Herbert Reilly—Correction. Mr. Basil Oliver [F] has drawn our attention to the fact that exemption from the Intermediate R.I.B.A. examination of the Liverpool University School of Architecture (at that time University College of the Victoria University of Manchester) was obtained in 1902 in the time of the late Professor F. M. Simpson [F]. As stated in the February JOURNAL, Sir Charles Reilly was in charge of the School in 1920 when exemption was obtained for the final examination of the R.I.B.A.

Mr. Oliver adds that three students obtained exemption from the Intermediate examination in 1902; they were Philip Dawson, who was killed in the first World War, and J. W. Cabré, who died recently; the third was Mr. Basil Oliver himself.

Herbert John Brownlee [F], of Cape Town, who died on 16 June 1947, was born in Christchurch, New Zealand, in 1885, and was in private practice on his own account in Gisborne, New Zealand, at the age of 21. In 1910, seeking wider vision and experience, he came to London, where he joined Sir Banister Fletcher's staff, and as a result of his studies, was elected an Associate in 1912. Returning to the Antipodes, he set up in practice in Sydney, and during the 1914-18 war was appointed architect to the Queensland State.

Mr. Brownlee, always keenly interested in architectural education, on going to Cape Town

in 1921 to recuperate from a severe nervous breakdown, was persuaded by the Cape Institute of Architects to become Principal of the School of Architecture established by it in that year. He remained for three years as Principal of the first School of Architecture in South Africa, until setting up in private practice again, in 1926, in Cape Town. In that year he was elected a Fellow.

From 1927 onwards he took an active interest in the work of the Institute of South African architects, serving for a number of years on the committee of the Cape Provincial Institute of Architects, of which he became President in 1936. He was elected President-in-Chief of the Institute of South African Architects in 1937, and, one of the moving spirits in the formation of the Guild of Cape Town Architects in 1946, he was its first Master.

His consulting practice was of considerable size, and he was much sought after by the legal profession in building disputes, and was once described as 'the perfect expert witness'.

His principal architectural works were: The Princess Alice Home of Recovery, Retreat; the extensions to the Victoria Hospital, Wynberg; the Groot Schuur Hospital Chapel; the Revenue Offices, Cape Town (in association with Brian Mansergh), and various schools for the School Board for the Cape Division.

Mr. Brownlee was also widely known in Cape Town musical circles as the possessor of a fine tenor voice which delighted many over the South African wireless.

He is survived by his wife, three sons and one daughter.

Granville Streatfeild [F]. The following appreciation has been sent by Mr. Owen Fleming [F]:— Granville Streatfeild who died last September was three years junior to me at the Architectural Association, and so we were not much thrown together in our student days. Otherwise there was a good deal of similarity. We both had had other plans in view. Streatfeild, after his schooldays at Marlborough, was aiming at Cambridge. My eyes were fixed upon Oxford. But as in Roman days 'res angusta domi' dominated the situation. We were each members of large families, and so, like many another ambitious youngster gifted with artistic perception we journeyed to London, put up at humble lodgings and 'pot-boiled' for a season while we were looking round.

These were rather stormy days for architects, and it was not long before the storm broke. The institution of a compulsory entrance examination by the R.I.B.A., coupled with 'Registration', was the signal for a revolt. Norman Shaw was the leader. Writing to Reginald Blomfield, he said: 'It must be war now and no quarter'. Streatfeild and I took different sides. I saw no harm in being examined. Looking back now after an interval of over 50 years I still look with gratitude to those days of preparation. It strengthened one's power of drawing, and opened one's eyes to the architectural achievements of past centuries. Streatfeild, however, had become a pupil of Sir Thomas Graham Jackson, R.A., who argued that architecture was not a profession but an art, and, being an art, test by examination was impossible. The later history of this

question is familiar to us all. Numerous painters and sculptors rallied to the support of the secessionists. The public, now aroused, took sides, and in the end, the New Gallery was established in Regent Street, where craftsmen of all categories could show their work. This went on for many years, and is still held from time to time at the Royal Academy. The R.I.B.A. now accepted the position, and in 1912 elected Sir Reginald Blomfield, now an R.A., to the Presidency.

What was happening to Streatfeild during these exciting times? Jackson still maintained his attitude. 'What is an architect?' wrote Jackson. 'Strictly a master-builder or chief craftsman.' 'Strictly speaking, this view is correct. Going back through Roman days to the days of the Greeks, the derivation is clear 'Archi,' chief, and 'tektōn,' workman. In these days, many a man thinks he can be an 'architect.' The disastrous results are everywhere apparent, and have done much to destroy the beauty of England.

To a master holding these views Streatfeild could not help becoming influenced, and I think he accepted them willingly, and that they guided his life. But this does not explain the delicate skill and refinement that I see in his early ecclesiastical work, when he was practising. I have been privileged to look at some photographs of work executed at this time, and they show the same spirit that animated George Bodley. Speaking of Bodley, Philip Webb says 'In him Gothic working was carried to its farthest point of perfection. It was almost a miracle and his churches are monuments of taste'. Streatfeild's work seems to me to possess this quality.

From Jackson's office Streatfeild went to work with Reginald Blomfield, whose work was mainly domestic, and finally he set up for himself. Work went on happily for a time, but the national position was becoming increasingly dubious and clients were hesitating about committing themselves to contracts. 1914 was throwing its shadow ahead, and architectural practice became difficult and precarious. All came to an end after those fateful days of early August. The grim facts of a European War soon became insistent, and Streatfeild was one of the first to lock up his office and to plunge into the struggle. At first he joined the Red Cross, and worked behind the lines, but the terrible sights he saw aroused his indignation beyond control, and passing on his Red Cross work to others he joined the Royal Engineers, throwing all his native energy to stem the torrent threatening to engulf Europe into destruction. He rose to the rank of Major, and was awarded the D.S.O. for courage in the field.

After the Armistice, and as soon as he could gather up the broken strands of earlier days, he opened a new office at No. 13 New Square, Lincoln's Inn, one of the most charming of the houses in that charming district. During the interval between the two wars his suspended practice rapidly recovered, and these years were the busiest of his life.

One interesting work was the restoration of Quebec House, the large house in Westerham, where General Wolfe was known to have spent some of his boyhood days. This was in a state of neglect, and one side had been covered with Portland cement and the gables obliterated. Streatfeild lovingly and tenderly dealt with the building, and it now stands as it did in Wolfe's time. The interior was also replaced, and the National Trust now holds the building, which is open for the public to be able to realize what Wolfe did for Britain.

He also devoted his attention to the preservation of Westerham as a whole, and was elected to the Sevenoaks Rural District Council, where, at their meeting in October

1947, the chairman in his tribute to his memory stated that he was one who had served the council to a degree that few had ever done. Major Pym, J.P., added that Streatfeild had been with them for 27 years. His family had been associated with Kent since at least before the reign of Queen Anne. His work was equivalent to that of a highly-paid official. They had built 700 rural houses, and were ahead of other rural councils throughout the country. With his charm of manner went tremendous principles. The local council stood in silence in respect for his memory.

A notable example of his recent work was the design of three Community Centres around London. He wanted to prove that the numerous requirements for this type of building could be provided in simply-designed buildings with good material. His success may be of value to the architects of these buildings today.

Another of his local services was to support the activities of the National Trust in the preservation of notable portions of this lovely district by inducing the local councils to purchase other lands contiguous to the Trust lands so as to form a continuous belt of beautiful country for the good of the people of London. The character of this result may be judged by a visit to any of these lands on a warm Saturday afternoon during the summer.

Streatfeild and his talented and energetic wife, Mrs. Deane Streatfeild, devoted much time and original thought to the development of what may be termed 'Social Sense'.

Such men as Granville Streatfeild earn the gratitude and admiration of us all, and as I saw the over-filled nave of Westerham Parish Church and the long cortège winding across to their friend's last resting place on that beautiful sunny September day my thoughts went back to the sacred words, 'Well done, thou good and faithful servant'.

The following are a few examples of his work: *Churches:* Oakham School Memorial Chapel; St. George's Church, Eastbourne; St. Michael's Church, Eastbourne; St. Augustine's Church, Brighton. The lovely little church of Wilton in Yorkshire and another at Stonegate, Sussex. Screen and panelling at the lovely little Loxton Church. There were in addition a number of reconstructions and alterations to various churches. *Community Centres and Village Halls:* Centres at Catford, Downham, and various village halls, one at Edenbridge. *Houses:* His chief interest was in building and altering country houses, such as Hawkleys Hurst Hampshire, Charts Edge, Westerham, Kent; Weald House, Crockham Hill (subsequently destroyed by bombing); Weydowne Hatch, Haslemere; Novard House, Folkestone; East Kentwyns, Henfield, Sussex; Tanners, Brasted, Kent; Copyiers Field, Westerham, Kent; Colletts, Westerham, Kent; Glebe House, Westerham, Kent; Lovebarden, Limpsfield, Surrey. *Factories:* He was greatly interested in his work for the notable factory of the Leather Cloth Company in East London.

Thomas A. Williams [L], who practised with Mr. F. H. Brown [A] at 6 Abbey Square, Chester, under the title 'Douglas Minshall and Co.' died on 9 December 1947 at the age of 73.

Mr. Williams was educated at the King's School, Chester, and was a pupil of the late John Douglas of that city. He was awarded the South Kensington Museum Bronze Medal for Art in 1894, and the South Kensington Museum Silver Medal for Art in 1895.

His principal architectural works were extensions to the Queen's School, Chester, the erection of the Chester Royal Infirmary, Nurses' Home, Easton Housing Estate, St. Deiniol's Library, and numerous restorations

to ecclesiastical and domestic projects in Cheshire and North Wales.

Mr. F. H. Brown [A] carries on the practice.

James Davidson Cairns [F], senior partner in the firm of J. D. Cairns & Ford, of Melville Street, Edinburgh, died on 25 November 1947 in his 81st year.

The following appreciations of Mr. Cairns have been received:

From Mr. James F. Ford, one of his partners:

Edinburgh has lost one of her best-known architects by the death of James Davidson Cairns.

From his school days at George Watson's Boys' College he was a product of Edinburgh. His apprenticeship, art school training, years as a draughtsman and finally as practising architect were all spent in Edinburgh, although from 1914 he resided in Peebles. His apprenticeship was served in the office of the late Mr. Robert Morham who, in addition to his private practice, was architect to the City of Edinburgh. After completion of his apprenticeship, he spent several years as a draughtsman in the office of the late Sir Rowand Anderson, R.S.A., later becoming chief draughtsman to the late Hippolyte J. Blanc, R.S.A.

In 1908, having been successful in the competition for Crail United Free Church, he started business on his own account. In 1928 he took into partnership Mr. James Fulton Ford, and in 1938 Mr. Arthur Bain Morrison, the firm being styled as 'J. D. Cairns and Ford'.

During his long professional life, he was architect for many outstanding buildings, including churches, hotels, restaurants, houses and schools. His great interest in church architecture drew him, not only to study the examples in this country, but also to study those on the Continent which he visited on several occasions.

For many years he was architect to Peebles-shire Education Committee, and the knowledge he thus gained resulted, in 1925, in his appointment as advisory architect to the Scottish Education Department, which appointment he held until his resignation in 1944. During these 19 years he was intimately concerned with the improvement in the planning of school buildings throughout Scotland. Later, as a member of the committee which undertook the preparation of the new School Building Regulations, his knowledge and advice was of great assistance.

To the end of his life his drawings were models of exactness, and nothing pleased him better to work out, in detail, some complicated plan. Always of a retiring disposition, his death will be keenly felt by those who knew him best. Kindly, considerate and upright in all things, the profession is poorer for his passing.

From 'An old friend':

It was with sincere regret that I learned of the death of Mr. Cairns, and this regret will be shared by many.

To those whose recollections extend over a considerable term of years, there comes a time when a link in the past is snapped, and it is so now. James Cairns was my oldest architectural friend, and I, as he once said, his. I knew him practically all his professional life, and can clearly recall our first meeting—at Holyrood, where we were both sketching and measuring. He was then in the office of the City architect, Robert Morham, and nearing the end of his pupilage.

I had the pleasure of meeting him on many subsequent occasions, and at one stage it looked as if I was to have his comradeship in the office in which I was at that time. It was with disappointment, however, that I learned

that his plans had been changed. That pleasure, however, came later when I joined the staff of Mr. Hippolyte J. Blanc, R.S.A., where Mr. Cairns was Chief Assistant.

In this office at that period, there was—indeed as always—a large amount of 'big work' being done—Bangour Asylum, won in competition; preparation of the competition drawings for the London New County Hall—a stupendous work and conducted in two stages, preliminary and selected. There was also other first class work, such as the competition for the restoration of Kirkwall Cathedral, together with other works of substantial size, ecclesiastical and secular.

From the nature of these works, it was obvious that the office staff would require to be supervised by someone having good organizing ability, and this, it was apparent to us all, Mr. Cairns possessed in a high degree. With quiet efficiency, he seemed to carry out everything so smoothly, receiving loyalty from the staff and bestowing it in return. He had the gift of getting the staff to 'deliver the goods'—a most valuable talent indeed, and often rare.

Another characteristic was his willingness to give help. I recognized this at our first meeting—a question put by a junior in years, patiently heard and sympathetically answered, a reply which also evidenced that characteristic thoroughness which was apparent throughout his career.

Mr. Cairns was one of the oldest members of the Edinburgh Architectural Association, having joined it at least prior to 1887—a membership of about 60 years.

Edward John Williams, J.P. [F], who died on 24 January 1948, was a well-known figure in the City of Leicester, where he held several appointments.

He had a wide and extensive practice, and was responsible for the erection of the headquarters and the branch offices of the National Society of Operative Printers and Assistants in London and Manchester, and elsewhere throughout Great Britain, in addition to which he designed a large number of hotels and public houses throughout Leicester, Leicestershire and Nottingham, and was also responsible for the design and erection of a large number of

private houses and industrial buildings throughout the Midlands.

He had been practising in Leicester for the past thirty years, and was articulated to Messrs. Stockdale, Harrison and Sons there.

Mr. Williams was one of the oldest serving magistrates on the City Bench, of which he was chairman. He was a former chairman of the Leicester Juvenile Court, and on the Advisory Panel of the Leicestershire Joint Planning Committee.

A President of the Leicester and Leicestershire Society of Architects from 1937-39, he was on the Advisory Panel for the Leicester School of Architecture.

Mentioned in despatches in the First World War, he held the rank of Brigade Major; whilst in the Second World War he commanded the Glenfield Platoon of the No. 3 Batt. of the Leicester Home Guard.

He was founder member of the No. 1 Branch of the British Legion, and held a number of offices in that connection, including Vice-Chairman of the Branch, Chairman of the Leicester Group, and also Vice-President of the area.

Membership Lists

ELECTION: 10 FEBRUARY 1948

The following candidates for membership were elected on 10 February 1948:

AS FELLOWS (5)

Bell: James, D.S.O., M.B.E., T.D., B.Sc. [A 1932], Glasgow.
Burnet: Frank Russell [A 1921], Glasgow.
Fowler: Norman Harold [A 1936], Leeds.
And the following Licentiates who have passed the qualifying Examination:
Boyman: Leslie Thomas.
Nuttall: Orrell Hyde Herbert.

AS ASSOCIATES (41)

Aimers: Jeffrey Jenner-Fust.
Alden: Marguerite Yvonne (Miss).
Arnold: Harold Godwin.
Beech: Geoffrey Clarence.
Blakesley: Douglas Arthur, Glenfield, Leics.
Brown: James, Bristol.
Brown: Richard, Dip.Arch. (Dist.) (Lvpl.), Liverpool.
Brown: Sam, Halifax.
Cunningham: Charles John, M.A.(Cantab.), Bristol.
Evans: Cecil William Thomas, Taunton.
Graham: William Eadington, Dip. Arch. (Dist.) (Dunelm), Newcastle-upon-Tyne.
Haigh: Kenneth Bickerton, Dip. Arch. (Leeds), Heckmondwike.
Halkyard: Marcelle Patricia (Miss), Nottingham.
Haviland: Daphne Marion (Miss).
Hirsh: Joseph Max.
Jacobs: Marguerite (Miss), B.Arch. (Cape Town), Bolton.
James: William Anthony Victor, Cardiff.
Jenkins: Robert Lewis, Dip.Arch. (Wales), Penarth.
Junge: Helmut, B.A.(Arch.).
Landau: Alexander William, A.M.T.P.I., Belfast.
Lawson: John Brodie.
Lebensold: David Froim.
Lee-Jones: June Swinford (Miss).
Maclaren: Ian Harker, Liverpool.
Miles: Susan Gambier (Miss).
Miller: Mary Constance (Miss), A.A. Dip. Morrison: Samuel.
Oates: Mary Elizabeth (Miss), Newark-on-Trent.
Oberlander: Henry Peter, B.Arch.
Orton: Lloyd Emerson Albert.

Powell: Patrick Thomas, Coventry.
Raven: Kenneth Shaw, Gateshead.
Reader: Mary Kate Wade (Miss).
Redpath: John Thomas, M.B.E.
Rosenthal: Hans Werner, Leicester.
Shirley-Smith: Robin, B.Arch. (L'pool), Liverpool.
Smeds: John, B.Arch. (Durham), South Shields.
Venil: Brian Frank.
Waugh: Eric, Blackburn.
Williams: Howard Owen, Dip.Arch. (Wales), Birmingham.
Wilson: Joyce Valerie (Miss).

AS LICENTIATES (14)

Allan: William Watt, Inverness.
Brathy: Albert Edward, B.Sc.
Camp: Frank Bernard.
Crook: George Lionel (Capt.).
Dyer: Sidney.
Fenton: Willie James, Aberdeen.
Hurcomb: William Eric Attenburrow, Kilmarnock.
Keat: Harry James, A.R.I.C.S.
Owen: Ronald Watkin, F.R.I.C.S.
Paterson: Hamish Noble, Inverness.
Rowe: Eric William.
Rutter: Frank Mowbray.
Saunders: John Henry.
Wheatcroft: Maurice, Chesterfield.

ELECTION: 6 APRIL 1948

An election of candidates for membership will take place on 6 April 1948. The names and addresses of the candidates, with the names of their proposers, found by the Council to be eligible and qualified in accordance with the Charter and Bye-laws, are herewith published for the information of members. Notice of any objection or any other communication respecting them must be sent to the Secretary, R.I.B.A., not later than Saturday 3 April 1948.

The names following the applicant's address are those of his proposers.

AS HON. CORRESPONDING MEMBER (1)

Harrison: Wallace Kirkman, President, Architectural League, New York; 270 Park Avenue, New York, New York, U.S.A. Proposed by the Council.

AS FELLOWS (6)

Couves: Dudley Leonard [A 1934], Carlisle House, Newcastle-upon-Tyne, 1; 'Heathdale', Elmfield Road, Gosforth, Newcastle-upon-Tyne, 3. R. N. MacKellar, Prof. W. B. Edwards, S. H. Lawson.

Gordon: Henry Vincent, D.S.C. [A 1933], Finsbury House, Blomfield Street, E.C.2; 57 Maitland Court, Lancaster Terrace, W.2. H. P. Gordon, F. H. Shann, Ernest Bates.

Kininmonth: William Hardie [A 1930], 16 Rutland Square, Edinburgh; 46a Dick Place, Edinburgh. A. H. Mottram, J. R. McKay, E. J. MacRae.

Stirrup: Gordon, Dip. Arch. (L'pool) [A 1932], 14 Richmond Terrace, Blackburn; Billinge View, Billinge End, Blackburn. Walter Stirrup, Harry Banister, F. J. M. Ormrod.

Walton: Donald Garbutt [A 1929], 42 Benhurst Court, Streatham, S.W.16. F. E. Wapshott, G. O. Scorer, A. J. Margetson.

Winder: Richard Henry [A 1921], College of Technology, Leeds, 6; 51 Wynford Avenue, Leeds, 6. Prof. R. A. Cordingley, J. P. Nunn, N. R. Paxton.

AS ASSOCIATES (23)

The name of a school, or schools, after a candidate's name indicates the passing of a recognized course.

Ascoli: George Myles (Arch. Assoc.), 13, Pelham Crescent, S.W.7. S. G. Livock, Howard Robertson, R. F. Jordan.

Barrell: George Walter (Special Final), 4 Beauchamp Road, Sutton, Surrey. W. J. Reed, H. M. Luyken, V. L. Nash.

Bradshaw: Ida (Miss), B.Arch. (Liverpool Sch. of Arch.: Univ. of Liverpool), 14 Bank Parade, Avenham, Preston. Prof. L. B. Budden, F. X. Velarde, B. A. Miller.

Burcher: Pamela Frank (Miss) (The Poly., Regent Street, London: Sch. of Arch.), 67 Burgess Road, Southampton. E. C. Scherrer, J. K. Hicks, L. A. Chackett.

Clark: Roger Shelley (Birmingham Sch. of Arch.), 'Glendair', Duffield Road, Derby. T. M. Ashford, George Drysdale, T. W. East.

Clay: John Arthur (Arch. Assoc.), 'Greenmount', Cobham, nr. Gravesend, Kent. L. H. Bucknell, Howard Robertson, R. F. Jordan.

Collins: Norman Robert Francis (Northern Poly (London): Dept. of Arch.), 44 Flanders Road, East Ham. T. E. Scott, Robert Lutyens, Harold Greenwood.

Couzens: Herbert Edgar (King's Coll., Univ. of Durham, Newcastle-upon-Tyne, Sch. of

Arch.: Architect's Dept., Zoological Society of London, Regents Park, N.W.8. Prof. W. B. Edwards, P. C. Newcombe, Lt.-Col. A. K. Tasker.

Davies: Derek Walter Rees (Arch. Assoc.), Bedford Lodge, Whyteleafe, Surrey. George Fairweather, R. F. Jordan, E. M. Fry.

Drake: William Harold (Arch. Assoc.), 16 Cyril Mansions, Prince of Wales Drive, S.W.11. A. C. Townsend, A. L. Roberts, R. F. Jordan.

Fawcett: Cedra Mary (Mrs.) (Victoria Univ., Manchester: Sch. of Arch.), 30 Park Road, Stretford, Manchester. Prof. R. A. Cordingley, J. P. Nunn, F. L. Halliday.

Field: Geoffrey Dymond (Passed a qualifying Exam. approved by the Inst. of South African Architects), Excelsior Hotel, 1 Ladbroke Gardens, W.11. D. R. Harper, O. P. Lewis, C. P. Walgate.

Kuttner: Ludwig, Dip. Arch. (Leeds) (Leeds Sch. of Arch.), 311 Beacon Road, Loughborough, Leicestershire. Applying for nomination by the Council under Bye-law 3 (d).

Lee: Vernon Harry, B.Arch. 1st Class Hons. (L'pool) (Liverpool Sch. of Arch. Univ. of Liverpool), 16 Milson Grove, Hull Road, York. Prof. L. B. Budden, F. X. Velarde, B. A. Miller.

Lewis: John Theodore [Final], 65a Trafalgar Road, Moseley, Birmingham. C. H. Elkins, E. U. Channon, J. L. Fouracre.

Lindon: Julianne Mary (Miss) (Birmingham Sch. of Arch.), 31 Devonshire Road, Handsworth Wood, Birmingham. T. M. Ashford, Herbert Jackson, Reginald Edmonds.

McIntosh: Ian Johnstone (Edin. Coll. of Art: Sch. of Arch.), 131 Saughtonhall Drive, Edinburgh, 12. J. R. McKay, A. H. Mottram, T. F. MacLennan.

Matthew: Henry Douglas, M.B.E., M.C. (Edin. Coll. of Art: Sch. of Arch.), 3 Rosebery Crescent, Edinburgh, 12. J. R. McKay, A. H. Mottram, T. F. MacLennan.

Menzies: Charles Alexander (Aberdeen Sch. of Arch.; Robert Gordon's Tech. Coll.), 6 Prince of Wales Terrace, Kensington, W.8. E. F. Davies, R. W. Stoddart, F. G. A. Hall.

Millard: Kenneth Edmund (Northern Poly. (London): Dept. of Arch.), 'Hollycroft', Norriss Road, East Barnet, Herts. T. E. Scott, Howard Robertson, J. M. Easton.

Morley: Leslie [Special Final], 19 Lansdowne Road, Middlesbrough. F. Willey, F. Mellor, T. H. Longstaff.

Sheffield: Adin Harrie (Arch. Assoc.), 'Galliot's', Bingham Avenue, Parkstone, Dorset. The late W. E. Trent, A. G. Porri, Howard Robertson.

Taylor: Brian Douglas Anthony Ogilvie (Arch. Assoc.), 27 Alma Square, N.W.8. Denys Lasdun, Howard Robertson, R. F. Jordan.

AS LICENTIATES (15)

Aberdour: Douglas Watson, Ministry of Works, Cleland House, Westminster, S.W.1; 211 Hainault Road, Leytonstone, E.11. A. W. Reading, Ernest Bates, F. E. Wapshott.

Berger: Joseph, Architect's Dept., L.C.C., County Hall, S.E.1; 20, Warwick Avenue, W.9. Edwin Williams, the late Prof. Sir Charles Reilly, B. H. Toms.

Bick: Dennis Herbert, Ministry of Works, 95 Newhall Street, Birmingham, 3; 40 Formans Road, Sparkhill, Birmingham, 11. Applying for nomination by the Council under Bye-law 3 (d).

Clayton: Albert Edward, Assistant Architect and Civil Engineer, Admiralty, Portsmouth; 'Wickesfield', West Wittering, West Sussex. A. C. Townsend, V. G. Cogswell, J. V. Nisbet.

Conrad: John Alexander, 10 New Dover Road, Canterbury; Broome Quarry, Barham, Kent. W. S. Willan, T. F. W. Grant, C. J. Cable.

Davies: John Rene Francis, 10 Prince Albert Street, Brighton; Forge Cottage, High Street, Henfield, Sussex. C. L. Clayton, K. E. Black, S. H. Tiltman.

Godwin: Wilfred, 19 Cottesmore Gardens, W.8. Howard Robertson, J. M. Easton, G. I. C. Highet.

Heap: Arnold Ingham, 18 Bank Street, Accrington; 'The Nook', Whitecroft View, Baxenden, Accrington. Samuel Taylor, P. G. Fairhurst, H. T. Seward.

Jaretski: Hans Sigmund, 106 Fitzjohn's Avenue, N.W.3; 51 Fitzjohn's Avenue, N.W.3. J. S. Bramwell, B. H. Dale, A. C. Townsend.

Jordan: Thomas Percival, Architect to Shepton Mallet R.D.C., Council Offices, Shepton Mallet, Somerset; The Garth, Kyte Road, Shepton Mallet. R. W. H. Vallis and the President and Hon. Sec. of the Bristol Soc. of Arch. under Bye-law 3 (a).

McCall: Norman Fotheringham, 46/47 New Broad Street, E.C.2; 12a Royal Parade, Chislehurst, Kent. W. Mollison, George Fairweather, S. B. Pritlove.

Marsh: Frank Henry, The Ministry of Supply, Ivy Bridge House, W.C.2; 10 Lyncroft Gardens, Ealing, W.13. A. L. N. Russell, A. D. Reid, A. G. Alexander.

Smith: Ronald Barrington, c/o Messrs. Brian L. Sutcliffe and Partners, 4 Westwood Road, Southampton; 46 Archers Road, Southampton. J. B. Brandt, B. L. Sutcliffe, E. R. Taylor.

Spear: William Arthur John, 1 Josephine Close, Norwich. E. H. Skipper and the President and Hon. Sec. of the Norfolk and Norwich Assoc. of Arch. under Bye-law 3 (a).

Williams: Herbert Owen, c/o Miners' Welfare Commission, 16 Oxford Street, Manchester; 39 George Street, Abbey Hey, Gorton, Manchester, 18. Peter Cummings, C. G. Kemp, H. F. V. Newsome.

ELECTION: 6 JULY 1948

An election of candidates for membership will take place on 6 July 1948. The name and address of the overseas candidate, with the names of his proposers, are herewith published for the information of members. Notice of any objection or any other communication respecting him must be sent to the Secretary, R.I.B.A., not later than Saturday 26 June 1948.

The names following the applicant's address are those of his proposers.

AS ASSOCIATE (1)

Asghar: Syed Ali, B.Sc., Hons. Arch. (Glasgow) (Glasgow Sch. of Arch.), Works and Building Department, Government of East Bengal, Dacca, India. W. J. Smith, L. W. Hutson, J. A. Coia.

Notes from the Minutes of the Council

MEETING HELD 10 FEBRUARY 1948

Appointments:

Osterley Park: The National Trust: R.I.B.A. Representative on Committee of Management: Mr. H. M. Fletcher [F].

Codes of Practice Committees: R.I.B.A. Drafting Committee 'F': Mr. Stanley Heaps [F], in place of Mr. H. Victor Kerr [F].

B.S.I. Committees: LGE—Electric Signs, Mr. C. H. Perkins [A]; **SFE—Standardization of Steel Radiators**, SFE—Standardization of Air Heater Batteries; **Mr. Bruce Martin** [A]. **CEB/6—Cast Concrete Products**, CEB/6/1—Concrete Blocks, CEB/6/2—Concrete Tiles, CEB/6/4—Concrete Kerbs and Flags, CEB/6/9—Concrete Floor Tiles, PVC/1/2—Cement, Concrete and Magnesium Oxide Compositions, STB/2—Concrete Aggregates; **Mr. F. H. Heaven** [A] in place of Mr. Ernest Seel [A].

Bequest to Building Fund: Under the provisions of the will of the late Mr. W. Scorer [A], the residue of his estate was to be divided equally between the 28th Bn. The London Regiment and the R.I.B.A. Building Fund. The sum of

£977 9s. 11d. had been received from the executors and paid into the Building Fund.

Direct Election to the Fellowship: Mr. William R. Laurie, B.Arch., F.R.A.I.A. [A], President of the Royal Australian Institute of Architects, was elected to the Fellowship under the provisions of the Supplemental Charter of 1925, Section IV, Clause 4.

Annual Reception 1948: The Council approved a recommendation that the price of tickets for the Annual Reception to be held on Friday 30 April 1948, from 8.15 p.m. to midnight, be fixed at 15s. per head.

Architects' Registration Council of the United Kingdom

(A) Under the provisions of the Architects' (Registration) Act, 1931, the R.I.B.A. is entitled to nominate 18 members to serve on the Architects' Registration Council for the year ending March 1949.

The following members have been appointed: Mr. Arthur Bailey [F], Mr. Darcy Braddell [F], Mr. Martin S. Briggs [F], Mr. A. C. Bunch [F], Mr. Cecil Burns [F], Mr. Anthony M. Chitty [F], Mr. R. B. Craze [F], Mr. T. C. Howitt [F], Mr. A. B. Knapp-Fisher [F], Mr.

H. V. Lobb [F], Lieut.-Colonel E. D. J. Mathews [F], Mr. A. L. Roberts [F], Lieut.-Colonel V. H. Seymer [F], Mr. H. G. C. Spencely [F], Mr. Sydney Tatchell [F], Mr. F. C. Wakeford [L], Mr. Michael Waterhouse [F], Mr. C. S. White [F].

(B) Under the same statute the R.I.B.A. is entitled to nominate four members to serve on the Admission Committee of the Council for the year ending March 1949.

The following members have been appointed: Mr. Arthur Bailey [F], Mr. R. B. Craze [F], Mr. Denis Poulton [F], Mr. A. T. Scott [F].

International Conference of Architectural Students: At the request of the Architectural Students' Association, the Council have made a grant of £50 towards the administrative expenses in connection with a proposed International Conference of Architectural Students to be convened jointly by the International Union of Students and Arch.S.A. in the summer of 1948.

Gift of Danish Architectural Books: The Institute have received a gift of a Danish architectural work in seven volumes, entitled *Danske Slotte Og Herregaarde*, from Field-Marshal the Viscount Montgomery of Alamein.

The appreciation and thanks of the Council for this gift have been conveyed to Field-Marshal Montgomery.

Membership: The following members were elected: as Fellows, 5; as Associates, 41; as Licentiates, 14.

Applications for Election: Applications for election were approved as follows: *Election 6 April 1948:* as Hon. Corresponding Member, 1; as Fellows, 6; as Associates, 23; as Licentiates, 15. *Election 6 July 1948—Overseas Candidate:* as Associate, 1. *Students:* 184 Probationers were elected as Students.

Applications for Reinstatement: The following applications were approved: as Associates: Eric John Sutcliffe, Thomas Edward Senior Thwaite.

Resignations: The following resignations were accepted with regret: John Herbert Hollier [F], Thomas Jenkins, O.B.E. [F], Thomas Henry Lyon [F], Herbert John White [F], Jonathan Harold Medhurst Bates [A], Charles William Bodie [A], Mrs. Agnes Mary Freeman [A], William Dalton Ironside [A], Andrew Mitchell

[A], David Proctor Bee [L], Samuel Tittle Heath [L], John T. Henshaw [L], John Pryce Owens [L], John Blythe Richardson [L].

Applications For Transfer to Retired Members, Class under Bye-law 15: The following applications were approved: As retired Fellows: Herbert John Sinclair Abrams, Harry Cook. As Retired Associate: Francis Henry Jones. As Retired Licentiate: Thomas Graveley Angell, Walter William Bull.

Obituary: The Secretary reported with regret the death of the following members: The Right Hon. the Earl of Derby, K.G., G.C.B., G.C.V.O., T.D. [Hon. F]; Canon Sidney Arthur Alexander, C.M.G., C.V.O. [Hon. A]; Professor Fritz Schumacher [Hon. Corresponding Member]; Herbert John Brownlee [F]. Major Harry Almond Lewin [F]; Professor Sir Charles Herbert Reilly, O.B.E., Hon.L.L.D., M.A. [F]. Professor Sir Charles Reilly was a former Vice-President and had served for many

years on the Council and Executive Committee, the Board of Architectural Education, Schools Committee, Visiting Board, Sessional Papers Committee, Art Standing Committee, Allied Societies' Conference, Royal Gold Medal Committee, R.I.B.A. Premises Committee, London Architecture Medal Jury, Town Planning Committee, Prizes and Studentships Committee, Reception Committee and the British Section of the Comité Permanent Internationale des Architectes. He was a former President of the Liverpool Architectural Society. He was also a member of the Architectural School in Italy Committee and afterwards became a member of the Faculty of Architecture of the British School at Rome. He was Royal Gold Medallist for the year 1943.

Edward John Williams, J.P. [F]. Mr. Williams was a former President of the Leicester and Leicestershire Society of Architects which he had represented on the Council.

Gourt Marinus Jacobus Geers [A].

Members' Column

This column is reserved for notices of changes of address, partnership and partnerships vacant, or wanted, practices for sale or wanted, office accommodation, and personal notices other than for posts wanted as salaried assistants for which the Institute's Employment Register is maintained.

APPOINTMENTS

Mr. Kenneth Exell [A] has resigned his appointment as Deputy Chief Housing Officer with the County Borough of East Ham on his appointment as a Regional Architect with the Ministry of Health.

Mr. Arthur S. Kemp [L] has been appointed Architect to Messrs. Smart Brothers Ltd., Orchard House, Orchard Street, London, W.1, and will be pleased to receive trade catalogues, etc.

Mr. R. S. Lawrie [A] has been appointed County Architect to the Fife County Council. His address for trade catalogues, etc., is County Buildings, Cupar, Fife. (Cupar, Fife, 2285.)

Mr. Raymond McGrath [F] has been appointed Principal Architect to the Office of Public Works, Dublin.

Mr. R. M. Watson Young [A] has been appointed Senior Architect to the Department of Health for Scotland, Edinburgh.

PRACTICES AND PARTNERSHIPS

Mr. Frederic A. Broad [L] has retired from the position of Quantity Surveyor and Deputy Borough Architect to the Swansea Corporation and has commenced private practice at 52, Pine-wood Road, Swansea, Glam. (Swansea 3229). He will be pleased to receive trade catalogues, etc. at that address.

Mr. M. Eker [A] is opening a practice at 18 Connaught Street, London, W.2 (Ambassador 3133) from 1 April 1948. He will be pleased to receive trade catalogues, etc., at that address.

Mr. Lionel E. Gregory [A] is continuing the practice known as Oldham and Gregory, 44 Towngate St., Poole, Dorset (Poole 1091) under his own name, following the departure to New Zealand of his partner, Mr. G. C. Oldham [L].

Mr. A. E. Prower [A] of 16 Gloucester Place, Portman Square, London, W.1 (Welbeck 7251) and of 36 Fordwich Road, Welwyn Garden City, Herts., will be pleased to receive trade catalogues, etc., at his London address.

Mr. K. J. Tomlin [L], Architect to the Government of Seychelles, Indian Ocean, would be pleased to receive trade catalogues, etc., required in connection with new building works in the Colony.

Mr. Horace Williams [A] is now resident at P.O. Box 105, Kitwe, Northern Rhodesia, and will be pleased to receive trade catalogues, etc., at that address.

CHANGES OF ADDRESS

Mr. F. Senior Bolland [A] has removed from 50 High Street, Manchester 13. His correspondence should be addressed to School of Architecture, School of Art, All Saints, Manchester 15.

Mr. G. Laurie Cadell [A] has removed from 90 Westbourne Terrace, London, W.2, to 9 Pembroke Place, London, W.2 (Bayswater 0641).

Mr. Wilfrid Cantwell [A] has moved his office to 13 Bachelor's Walk, Dublin (Dublin 70503).

Mr. William E. Mayer [A] has removed from 22 High Street, Chorley, to 12 Cleveland Street, Chorley, Lancs (Chorley 2068).

PARTNERSHIP AVAILABLE

Partnership available in old-established London practice (Assistant with view to partnership would be considered). Reply Box 135, c/o Secretary, R.I.B.A.

WANTED AND FOR SALE

Architectural books are required for purchase by Associate for reference in practice and teaching. Reply Box 136, c/o Secretary, R.I.B.A.

For disposal by retired member, a number of books useful to architectural students. Further details on application to Box 130, c/o Secretary, R.I.B.A., or 'phone Pollards 4473 between 4 p.m. and 6 p.m.

For sale. 'Studio', Vols. 1 to 28 (inclusive), bound; 'History of Architectural Development' (F. M. Simpson), Vols. 1, 2, 3; 'Architecture of Greece and Rome' (Anderson and Spiers); 'Italian Renaissance Architecture' (Anderson); 'A History of Architecture' (Professor Banister Fletcher and Banister F. Fletcher); 'Cambridge described and illustrated' (Atkinson and Clarke); 'The Epochs of Painting' (Wornum); 'The English House' (W. Shaw Sparrow). All in good condition. Offers to Box 134, c/o Secretary, R.I.B.A.

For sale. Full set of Harling drawing instruments, hand-made, needle points, also Harling beam compasses, both in velvet-lined cases. Excellent condition. Reply Box 133, c/o Secretary, R.I.B.A.

Large plan-chest for sale at £25; 30 drawers, double elephant and imperial; stained deal and with brass fittings and name-plates; about 9 ft. long. Also for disposal a knee-hole chest of drawers and a writing-table to go over it. There is a small bookcase (glazed) at the back; the two pieces £30. Buyer must dismantle and remove. For appointment to inspect write **Philip Robson** [F], Perceval House, London, S.E.10.

Wanted. Office furniture, double-elephant boards and T-squares by member setting up in practice. Reply Box 131, c/o Secretary, R.I.B.A.

Wanted. 'The Elements of Quantity Surveying', by A. J. Willis, and 'Ny Svensk Arkitektur', Reply to G. E. Charlewood [F], 14, Neville Street, Newcastle-upon-Tyne 1.

Wanted. 'Town Planning in Practice' (Sir Raymond Unwin). Reply Box 132, c/o Secretary, R.I.B.A.

ACCOMMODATION

Available overlooking Belgrave Square, architect's office, fully furnished, including plan-chests, etc. Rooms for Secretary, principal and staff, with lavatory accommodation. Moderate rent to suitable applicant. Reply Box 137, c/o Secretary, R.I.B.A.

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